THE HANDBOOK

ON PAINTING

New
DUTCH BOY
PURE WHITE LEAD
PAINT
ready for the brush

Now—in addition to white lead in the regular paste form—you can get Dutch Boy ready to use. It's pure white lead, too, with all of white lead's durability, economy and long-lasting beauty.

The new Dutch Boy Paint comes in two forms—an Exterior Primer and an Outside White. Full directions for application are on each container. General instructions for preparing the surface as given in this Handbook apply also to the new paint.

—CONTINUED ON INSIDE BACK COVER

THE HANDBOOK ON PAINTING

NATIONAL LEAD COMPANY

111 Broadway, New York • 116 Oak Street, Buffalo • 900 West 18th Street, Chicago • 659 Freeman Avenue, Cincinnati • 1213 West Third Street, Cleveland • 722 Chestnut Street, St. Louis • 973 John Street, Seattle • 1211 N. W. Glisan Street, Portland, Oregon • 932 Wilson Street, Los Angeles • 2240-24th Street, San Francisco • National-Boston Lead Co., 800 Albany St., Boston • National Lead & Oil Co. of Penna., • 1376 River Ave., Pittsburgh • John T. Lewis & Bros. Co., Widener Building, Philadelphia.

VOLUME MIXING DIRECTIONS

REPAINT

OUTSIDE WOOD
(INCLUDING WOOD SHINGLES)

FIRST COAT

FINISH COAT

DRIER: Add ¼ pint to each gallon of paint, if raw linseed oil is used. Boiled linseed oil requires no drier.

*For flat finish on shingles use Lead Mixing Oil instead of linseed oil in this coat. No drier required.

INTERIOR WALLBOARD

NEW

USE PROPER PRIMING COAT BELOW FOLLOWE

OUTSIDE WOOD (INCLUDING WOOD SHINGLES)	INT. WOOD	BRICK
3 Parts WHITE LEAD	3 Parts WHITE LEAD	3 Parts WHITE LEAD
4 Parts LINSEED OIL	3 Parts LINSEED OIL	5 Parts LINSEED OIL
2 Parts TURPENTINE	2 Parts TURPENTINE	1 Part TURPENTINE

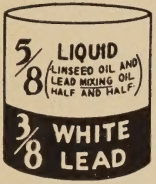
Add ¼ pint drier to each gallon of paint if raw linseed oil is used.
Boiled oil requires no drier.

FOR SOFT PASTE WHITE LEAD

WORK

BRICK, STUCCO, CONCRETE AND STONE

FIRST COAT



FINISH COAT

NO DRIER REQUIRED

*For gloss finish use linseed oil instead of Lead Mixing Oil in this coat. Use drier as per note opposite.

PLASTER, WOODWORK

FIRST AND FINISH COATS (FLAT FINISH)

NO DRIER REQUIRED

WORK

BY TWO COATS MIXED AS PER DIAGRAMS ABOVE

STUCCO, CONCRETE AND STONE

4 Parts WHITE LEAD
3 Parts LINSEED OIL
3 Parts LEAD MIXING OIL

INTERIOR PLASTER AND WALLBOARD

DUTCH BOY WALL PRIMER
(OR)
3 Parts WHITE LEAD
4 Parts LEAD MIXING OIL

NO DRIER REQUIRED

INTRODUCTION

PAINTING is an art that cannot be learned from books. There are many things about it that require study, observation and constant practice under actual working conditions. This is why the trained painter gets results that satisfy his customers and lead to more business.

This Handbook on Painting is not designed to create a skilled painter out of the amateur. Rather it is a storehouse of practical paint knowledge covering the preparing and painting of the various surfaces that are customarily painted.

As such it is a valuable guide to the uninitiated as well as a reference work for the painter, architect, builder, engineer, building manager and other experienced users of paint.

Look For The Dutch Boy Trademark

This famous little character is put on our products as a means of identification and as a protection to the buyer against substitution. You will find this trademark on all packages of Dutch

Boy paste white lead (both soft paste and heavy paste), Dutch Boy Pure White Lead Paint, Dutch Boy red lead (both paste and liquid), Dutch Boy linseed oil, Dutch Boy Lead Mixing Oil, Dutch Boy flatting oil, Dutch Boy wall primer, Dutch Boy colors in oil, as well as on other products of our manufacture

Look for the Dutch Boy trademark—it assures you of a quality product made to fit the needs of the job.

CHAPTER I

Some Paint Facts

BEFORE taking up the actual mixing and the use of paint, it may be well to consider briefly the paint to be used. Whether it is an outside job or an interior job, the *kind* of paint used is as important as the *way* it is used.

One thing is certain—when it comes to paint it always pays to use the best. After all, what you are seeking in a paint job is *paint life*. If the paint does not give good service you are being cheated.

What Is the Best Paint?

The experience of the skilled painter has shown him that for economy, durability and long-lasting appearance no other paint equals pure white-lead.

The reputable painter cannot afford to guess when it comes to paint. His livelihood, his business future, his reputation as a craftsman all depend on *knowing* what paint will back up his every claim. The fact speaks for itself that this type of painter, the country over, recommends and uses white-lead.

Elastic Paint Necessary

The paint on a house should be designed to give a tough, highly weather-resistant coating and should retain its good appearance over a long period. The paint film, furthermore, should remain elastic. This also is important. Wood contracts and expands due to atmospheric changes. A paint

film that is hard and unyielding, or that becomes so, cannot follow this alternate shrinking and stretching of the material to which it is applied. Consequently it pulls apart. In the film appear cracks that extend clear through to the wood beneath. Moisture entering these cracks gets under the paint—causes it to scale from the surface leaving bare spots that grow larger as time goes on. The inevitable result is expensive preparation of the surface before any repainting is done.

A white-lead film is never subject to this defect. It remains elastic—conforms to the "give and take" of the surface beneath. Consequently it does not crack and scale and when repainting time comes around, there is no old, scaly paint to be burned and scraped off—a job which sometimes costs almost as much as the actual repainting.

A white-lead paint film stays unbroken, smooth and even, wearing down slowly by gradual chalking, always providing a continuous coat of protection for the surface that it covers and, in the end, a perfect surface for repainting.

Remember this important fact—that the amount paid for a paint or a paint job doesn't determine how much it costs but the years of wear *do*.

The paint for interior surfaces should also be elastic—in the sense of versatility. Whether the decorative effect depends on color, finish, texture or a combination of all three, white-lead paint can be mixed to produce exactly the effect desired. Another advantage of white-lead paint for interior use is its washability. Dust and grime on walls

painted with white-lead can be washed off without noticeable effect on the paint.

White-lead's Low Cost

Because white-lead, properly applied, furnishes protection and decoration over a maximum period of time—it is accepted everywhere as a paint of the highest quality.

This does not mean, however, that white-lead is also an expensive paint. On the contrary, it is decidedly economical—whether mixed from paste white-lead or purchased ready for the brush.

Because paste white-lead is bought by the pound, few users realize how little they are paying for the paint by the gallon when they mix it from paste white lead. However, it's easy enough to figure out. Just add the cost of the white-lead to the cost of the vehicle with which it is mixed. Then divide by the number of gallons obtained.

If you prefer Dutch Boy Pure White Lead Paint, the ready-to-use product, you will find that it is priced so that you get all of white-lead's advantages at no greater cost per gallon than regular quality paint.

Heavy Paste and Soft Paste White-lead

Dutch Boy paste white-lead is sold in two forms—heavy paste and soft paste. Both are pure white-lead. Both sell for the same price. Heavy paste white-lead has been used for many years. Soft paste is of more recent development.

The terms "heavy" and "soft" refer to the consistency of the white-lead. In fact, soft paste white-lead is simply heavy paste to which has been

added a small amount of turpentine, thoroughly ground in at the factory with special mills. This produces a white-lead which can be thinned to paint more quickly and more easily than heavy paste. The resulting paint is exactly the same in either case so it is simply a matter of personal preference which form of white-lead shall be used.

There is nothing difficult or complicated about mixing white-lead paint. The actual mixing operation is simplicity itself as may be seen from the illustrations on page 19. White-lead is simply poured into a mixing tub, the vehicle added and the batch stirred.

For painting exterior and interior surfaces of various materials, simplified volume mixing directions are shown in the front of this book. For many people it is easier to mix white-lead paint this way. However, the mixing directions for these and all other surfaces are also given in formula form since this is the standard method, particularly for large batches of paint.

The "made-to-order" feature of paint mixed this way is important. It means, first, that you are sure of getting a paint exactly suited to the surface to be painted.

For instance, yellow pine may require a little different paint mixture than cedar; in humid climates less oil is required in the final coat of paint; the undercoat should be so mixed that it will provide proper "tooth" for the top coat.

In addition, white-lead can be tinted to a wide range of colors. You can get just the tint or shade desired. No need to compromise on a color

that only approximates what you have in mind.

Dutch Boy paste white-lead may be obtained in the following size steel packages at practically any store selling paint: 100-pound kegs, 50, 25 and 12½ pound pails, 1 and 5 pound tins. The soft paste containers are plainly marked "Soft Paste."

Dutch Boy Pure White Lead Paint

Dutch Boy white-lead is also available ready-to-brush. This product is known as Dutch Boy Pure White Lead Paint and comes in two forms—a special exterior primer and an outside white. Both contain nothing but pure white-lead plus the necessary linseed oil, thinner and drier.

These two forms are particularly designed for use together to produce sparkling white two-coat jobs on either new or old wood. The primer is formulated to give extra sealing and hiding and to provide the proper foundation for the finish coat of outside white. The outside white is a full-bodied, smooth-flowing and easy-brushing paint so that the result is a fine appearing paint job with all of white-lead's durability and weather-resistance.

Dutch Boy Pure White Lead Paint and Dutch Boy Pure White Lead Exterior Primer come only in white and are for exterior use. However, like all white-lead paint, they can be easily and quickly tinted with Dutch Boy colors in oil. Full directions for their use will be found on each container. The general instructions for the preparation of the surface and the application of paint as contained in this book apply to this ready-to-use paint as well as to paint made from paste white-lead.

Both the primer and the outside white come packed in quart and gallon cans as well as in five-gallon kits and 20-gallon drums.

Linseed Oil

Only linseed oil of the best quality should be used in white-lead paint. Linseed oil becomes a very important part of the paint film, for it binds the white-lead particles together. If it fails prematurely, the paint film fails also.

Two types of linseed oil are manufactured under the Dutch Boy name and trademark—raw and boiled. Both are pure linseed oil but they differ somewhat in their characteristics as explained below. They are put up in sealed containers of two sizes—one-gallon and five-gallon cans.

Raw Linseed Oil

Raw linseed oil is obtained by crushing and pressing flaxseed. The oil is aged for a certain length of time to allow the "foots" or mucilaginous matter in the oil to settle out, after which it is packaged for sale.

Boiled Linseed Oil

Boiled linseed oil is made from raw oil by dissolving certain drying compounds into raw oil with the aid of heat. This heat treatment accounts for the term "boiled." Boiled oil is somewhat thicker than raw oil and, since it has been partially oxidized in its manufacture, has a quicker drying action than raw oil when used in paint. Consequently, little, if any, drier should be added to the paint when boiled oil is used as the vehicle.

Drier

Dutch Boy liquid drier was developed specially for use in white-lead paint. This product is the result of a careful study of the drying requirements of paint. It is an unusually strong drier of the best known composition—properly balanced to bring about efficient drying of the paint—always uniform in strength and quality. Dutch Boy liquid drier can be purchased where white-lead is sold. Comes in half-pint, pint, quart and gallon cans.

Turpentine

Turpentine is added to paint to reduce its consistency, making it easier to brush, without changing the relative proportions of pigment and linseed oil in the final film. A short time after application, the turpentine completely evaporates from the paint film, leaving the oil and white-lead. It makes possible the spreading of a fairly flat, hard body coat and in the finishing coat its use, in the right amount, makes it possible to reduce the quantity of linseed oil, resulting in a harder, better wearing paint. Turpentine also assists the penetration of the paint, particularly in the priming coat on resinous woods.

Colors in Oil

White-lead, mixed according to the paint formulas in this book, makes white paint. However, it is a simple matter to tint either this paint or Dutch Boy Pure White-lead Paint by adding colors in oil. This is discussed in detail in Chapter VI, Colored Paint.

Dutch Boy colors in oil, noted for their ease of use and high quality, can be obtained almost everywhere white-lead is sold. There are about forty different colors in the Dutch Boy line. They come in gallons, quarts, half-pints and many colors are also available in tubes holding about two liquid ounces. The approximate weight per can of each Dutch Boy color is given on page 126.

Wall Primer

For the first coat on interior plaster, Dutch Boy wall primer is the best possible recommendation. Not only does it effectively stop the surface suction and seal fine fire cracks, but it hides the surface as well, providing an ideal foundation for the succeeding coats. It does all these things because it is an actual paint (not simply a sealing liquid) made with a carefully prepared varnish type vehicle.

Dutch Boy wall primer—the "sealer and paint coat combined"—is sold in quart and gallon cans, as well as five-gallon and twenty-gallon drums.

Lead Mixing Oil

Dutch Boy Lead Mixing Oil is designed especially for use with Dutch Boy white-lead. It produces a paint that seals, protects and beautifies porous surfaces such as plaster, concrete and stucco —interior or exterior.

Interior paint made with white-lead and Lead Mixing Oil may be used for all coats on new plaster or wallboard. In the priming coat, it effectively seals the surface, and in the final coat, it

produces a soft effect, commonly known as a "flat finish." The hard tough film withstands frequent washing.

Dutch Boy Lead Mixing Oil with white-lead also makes a superior undercoater for enamels. Some of its other uses are in stenciling and bronzing.

Exterior paint made with white-lead and Lead Mixing Oil is ideal for concrete and stucco. Such surfaces need a waterproofing paint to prevent dampness, cracks and surface staining. The sealing properties of Lead Mixing Oil result in a paint which successfully keeps out dampness and moisture. In the final coat, it produces a hard, durable surface which wears down slowly by gradual chalking, leaving a perfect surface for repainting.

Dutch Boy Lead Mixing Oil can be purchased where you buy your white-lead. It comes in one-gallon cans and five-gallon drums.

Flatting Oil

Dutch Boy flatting oil is a special vehicle used chiefly on interior work. Mixed with white-lead, it produces a paint which dries to a decidedly flat finish. Paint made with it levels out slowly enough so that a sharp stipple finish can be produced.

Flatting oil is an excellent medium for glazing and for the preparation of white-lead and oil plastic paint. It also can be used in staining wood and in producing grained effects.

Red-lead

Red-lead is the standard paint for the protection

and preservation of iron, steel and other metal surfaces. It is insoluble in water, is not affected by ordinary atmospheric gases, sticks tightly to the surface it covers and is a true rust preventive.

Under the Dutch Boy trademark, you can obtain red-lead in paste form, mixed with pure linseed oil; or in liquid form, ready for the brush.

The former is known as Dutch Boy red-lead and is sold by the pound in 12½, 25 and 50 lb. pails and in 100 lb. kegs.

One type of liquid red-lead is known as Dutch Boy Quick-Drying Red-Lead. It is a convenient and economical paint for use on metal surfaces about the home, such as tin roofs, gutters, iron fences, fire-escapes, railings, etc. Not only does it give the long life and efficient protection of all pure red-lead paints, but it gives the added convenience of quick drying. It can be recoated in from four to six hours after application.

Quick-Drying Red-Lead comes only in natural red-lead color. It is sold in pint, quart and one-gallon cans, five-gallon kits and twenty-gallon drums.

Red-lead may also be obtained in dry form, in 12½, 25 and 50 lb. steel pails, in 100 lb. steel kegs and in 250 and 500 lb. casks.

CHAPTER II

Exterior Wood Painting

WOOD is in most localities the most widely used surface material. As such its painting for protection and decoration is an important consideration. This chapter contains the basic information needed to properly prepare and to efficiently paint exterior surfaces of wood with white-lead paint.

Adjustment of Formulas

The formulas in this chapter have been carefully worked out to represent our best judgment as to sound painting practice for average conditions. In most locations and on most types of surfaces, they will give excellent results. However, it is recognized that even the *best* average formulas do not meet all conditions and one of the chief advantages of mixing paint from white lead is that adjustments can readily be made to meet special conditions. Experience is the surest guide to this adjustment but a few general facts may be helpful.

FORMULAS FOR PAINT FOR EXTERIOR WOOD SURFACES APPEAR ON PAGES 14 AND 15

Previously Painted Wood

Materials	First Coat Formula No. 1c	Finish Coat Formula No. 2c
Dutch Boy white-lead	100 lbs.	100 lbs.
Dutch Boy linseed oil	2 gals.	*3¼ gals.
Pure turpentine	2 gals.	.....
Dutch Boy liquid drier	1 pint	1 pint
Gallons of paint produced	7⅜	6⅝
Sq. ft. covered per gal., 1 coat	700	700

* In some instances when a harder film is desired for the finish coat, particularly where excessive dirt discoloration or mildew is prevalent, a reduction of the linseed oil is recommended. At least 2½ gallons of linseed oil should be used. One quart of turpentine should be added to the formula if the oil is reduced below 3 gallons.

New Wood

Materials	Priming Coat Formula No. 3c	Second Coat Formula No. 4c	Finish Coat
Dutch Boy white-lead	100 lbs.	100 lbs.	Use
Dutch Boy linseed oil	4 gals.	1½ gals.	Formula
Pure turpentine	2 gals.	1½ gals.	No. 2c
Dutch Boy liquid drier	1 pint	1 pint	
Gallons of paint produced	9⅜	6⅜	
Sq. ft. covered per gal., 1 coat	600	700	700

Previously Painted Wood Shingles

Materials	First Coat Formula No. 5c	Finish Coats *(Gloss)* Formula No. 6c	Finish Coats *(Flat)* Formula No. 7c
Dutch Boy white-lead	100 lbs.	100 lbs.	100 lbs.
Dutch Boy linseed oil	2½ gals.	3¼ gals.	.....
Dutch Boy Lead Mixing Oil	.....	.....	3 to 4 gals.
Pure turpentine	1¼ gals.	.....	.....
Dutch Boy liquid drier	1 pint	1 pint	.....
Gallons of paint produced	7⅛	6⅝	6¼ to 7¼
Sq. ft. covered per gal., 1 coat	500	600	600

New Wood Shingles

Materials	Priming Coat Formula No. 8c	Second Coat Formula No. 9c	Finish Coat
Dutch Boy white-lead	100 lbs.	100 lbs.	Use Formula No. 6c or No. 7c
Dutch Boy linseed oil	4 gals.	2 gals.	
Pure turpentine	2 gals.	1 gal.	
Dutch Boy liquid drier	1 pint	1 pint	
Gallons of paint produced	9⅜	6⅜	
Sq. ft. covered per gal., 1 coat	200	400	600

Wood Floors

Materials	Priming Coat Formula No. 10c	Second Coat Formula No. 11c	Finish Coat Formula No. 12c
Dutch Boy white-lead	100 lbs.	100 lbs.	100 lbs.
Dutch Boy linseed oil	3 gals.	½ gal.	½ gal.
Pure turpentine	2 gals.	2¼ gals.	¾ gal.
Floor varnish	.....	.....	1 gal.
Dutch Boy liquid drier	1 pint	½ pint	½ pint
Gallons of paint produced	8⅜	6	5½
Sq. ft. covered per gal., 1 coat	600	700	700

HEAVY PASTE

All formulas on these pages are based on the use of soft paste white-lead. If heavy paste is used add 1 quart of turpentine to all formulas except No. 7c.

BOILED LINSEED OIL

If boiled linseed oil is used omit drier called for in formulas.

Repaint Work

The first coat of paint on repaint work (Formula No. 1c) must satisfy a certain amount of surface porosity usually caused by the dried-out old paint that soaks up the free oil and at the same time produce a fairly hard semi-flat surface when dry. It will be noticed that there is more linseed oil and turpentine in the first coat on repaint work (Formula No. 1c) than there is in the second coat on new work (Formula No. 4c) to which, in function, it more or less conforms.

The final coat (Formula No. 2c) contains enough linseed oil to give a satisfactory gloss without at the same time producing a soft film that collects dirt. Putting too much linseed oil into the final coat may cause premature chalking, particularly on southern exposures. It is a decided mistake to load up the final coat with linseed oil to make a high gloss. True, the immediate effect will be a somewhat higher gloss but it usually departs very quickly or collects so much dust and dirt that the surface is ruined. It is far safer to keep the linseed oil to the minimum. Such a paint may be harder to brush but the extra effort is well repaid, by the increased durability and longer good appearance of the paint film.

New Work

The first coat of paint on a surface that has never been painted or from which all previous paint has been removed is known as the priming coat. Because the priming coat becomes the foundation for all succeeding coats of paint, its proper formulation

and proper application are particularly important.

A wood surface, as revealed through a microscope, is made up of countless small openings. In order to anchor paint properly to such a surface, the priming coat must enter these openings and key itself to the surface by filling the open wood cells. It must therefore contain enough linseed oil to satisfy the surface porosity and enough thinner to bring about proper penetration.

Formula No. 3c is made up on this basis but woods such as cedar, redwood and white pine are more absorbent than yellow pine or Douglas fir, so the painter should adjust the linseed oil and turpentine to take care of these differences. For example, the latter types of wood require less linseed oil to satisfy porosity and more turpentine to penetrate the rather pitchy surface.

The body coat on new work (Formula No. 4c) is formulated to produce a fairly hard, semi-flat surface when dry. It has been found by experience that this is the best type of surface to provide a good foundation for the third and final coat. More linseed oil may be added at the discretion of the painter if it is felt that the priming coat has not entirely done away with the absorption. Care must be taken, however, to keep the body coat harder and less elastic than the final coat.

What has been said before about the final coat on repaint work applies as well to the final coat on new work. The same formula is used for both.

Tinting Priming Coat

It is always good practice to slightly tint the

priming coat by adding Dutch Boy raw umber in the proportion of ¼ pint to a hundred of white-lead. Even when the final coat is to be white, this practice results in a more solid appearance and a better looking job.

Mixing Paint from White-lead

It takes but a few minutes to make paint from soft paste white-lead. After stirring in whatever free oil may be on top of the lead when a keg is opened, all you do is pour the quantity of lead needed into a clean mixing tub and then mix in thoroughly the liquid or liquids called for by the formula. (See opposite page.)

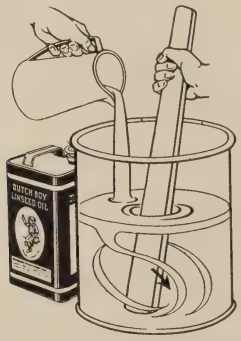


Figure 1—*"Breaking Up" Heavy Paste*

Paint is made from heavy paste white-lead in exactly the same way as when using soft paste except that it must first be "broken up." This is done by stirring in the oil a little at a time until a workable or fairly soft paste is obtained. For the stirring, use a strong, smooth paddle and work up

FROM PASTE TO PAINT IN TWO SIMPLE STEPS

ONE:

After giving the soft paste a few stirs to mix in any free oil on top, pour as much as you need into a mixing tub or pail.

TWO:

Reduce to paint by stirring in the liquid or liquids called for in the formula. If you want colored paint, add colors in oil.

the lead from the bottom of the mixing tub or pail as illustrated in Figure 1 on page 18.

Straining the Paint

After the paint is completely mixed, strain it through cheesecloth folded double or a fine wire screen. This will remove lumps and any foreign material that may have gotten into the paint, as well as improve the paint's brushing qualities.

A good way to strain the paint is to pour it from the mixing tub or pail into the paint pots over which the strainer has been stretched. Clean, twenty-five pound or fifty pound white-lead pails make good paint pots. The former holds about three quarts of paint.

The Use of Drier

Drier should be added to all paint thinned with raw linseed oil. Under poor drying conditions, such as cool, damp or humid weather, the amount of drier should be increased, not to exceed twice the amount called for in the formulas.

Tinting

It is best practice to mix the colors in oil into the paint before all of the thinner is added. However, Dutch Boy colors are so soft and finely ground that they can be safely added even after the paint is ready to brush.

Add and thoroughly mix in small quantities of color at a time until the match is reached or the desired color obtained.

Chapter VI, starting on page 67, is devoted to the subject of coloring paint. It will pay you to read this carefully before going ahead.

Square Feet to a Gallon

In figuring the number of square feet a gallon of white-lead paint will cover, a great deal depends on the surface to be painted; that is, the kind of wood, the degree of roughness, etc. Some woods are more porous than others and absorb more paint. Much depends, too, on the way the paint is brushed out. Some painters brush the paint out more and thus cover more surface.

The priming coat, mixed according to the formula instructions given on page 14, will cover from 500 to 700 square feet to the gallon, one coat. Second and third coats on new work and first and second coats on old work will cover 650 to 750 square feet to the gallon, each coat.

How Much Paint?

For those who do not want to trouble themselves with detailed measurements of a building and wish merely to know approximately the number of gallons of white-lead paint needed for the job, the following method of estimating will do:

Measure the distance around the building in feet and multiply by height in feet to the eaves or cornice. If there are gables, multiply their widest part in feet by half their height. Add these figures and divide the result by 600, which is about the number of square feet that one gallon of white-lead paint will properly cover. This gives you the number of gallons of paint needed for the body of the building for one coat. Multiply the number of gallons by the number of coats to be

put on and you have the necessary amount of paint. For trim, figure a gallon for each 300 feet.

A typical six-room frame clapboard house, using this method of estimating, will require about thirteen gallons of paint for a two coat repaint job. For this you will need to buy two "hundreds" of white-lead, five gallons of linseed oil, two gallons of turpentine and two pints of drier.

Coats to be Applied

Two coats are sufficient for previousy painted surfaces where the old finish is in reasonably good condition. (See Formulas No. 1c and 2c.)

On a surface not previously painted, apply paint mixed according to the following formulas: No. 3c, 4c and No. 2c and in the order named.

Two Coats on New Work

The standard practice is three coats of paint on new wood. However, need for initial economy sometimes makes a two-coat job on new wood necessary. For such work the priming coat should be mixed on the basis of 100 lbs. Dutch Boy white-lead, 1½ gals. linseed oil, ¾ gal. spar varnish, ½ gal. turpentine, 1 pint of liquid drier, ¼ pint Dutch Boy raw umber, or use Dutch Boy Pure White Lead Exterior Primer.

The finish coat should be mixed according to Formula No. 2c, or Dutch Boy Pure White Lead Paint (outside white) may be used. If paint mixed from paste white lead is to be used for two-coat work on a house that is to be accepted as

security for a F.H.A. mortgage loan, Formula 2c should be modified by reducing the linseed oil to 2⅔ gals. and adding 3 pints of turpentine.

Preparation of Surface

Repaint Work

On repaint jobs where the old surface has been properly painted with white-lead and oil, no extensive preparation is usually necessary. Since white-lead wears away slowly by chalking all that is necessary is a good dusting with a fairly stiff brush before the first repaint coat is applied. On surfaces that have shown cracking and scaling, or blistering and peeling, it is usually necessary to remove all of the old paint using either a paste or liquid paint remover of the slow drying type, or a blow torch and scraper.

If a blow torch is to be used, remember that it is a potentially dangerous instrument. Care should be taken to keep the flame away from loose casings, knot-holes, open cracks and underneath clapboarding. Otherwise a fire may be started in a hidden location and cause serious damage before discovered or put out. Also do not attempt to use a torch on window sash or around the glass on a door. If the heat touches glass it will break it.

Do not hold the flame against the paint long enough to char the wood. The heat is merely to soften the paint not to consume it. The scraper should take it off the wood. When the paint becomes bubbly under the flame move the flame and scrape off the hot, softened paint. Keep

the flame about two inches in advance of the scraper blade. It is best to work up the wall rather than down.

The surface should be sanded and carefully dusted after the burning and scraping operation is completed.

In Chapter X, starting on page 108, directions will be found for treatments that might be necessary where special conditions exist, such as mildew, blistering, or alligatoring, etc. If the old paint is removed completely, three coats of paint should be applied in accordance with the formulas recommended for new work.

New Work

On new wood it is sometimes necessary to lightly sand the surface, particularly at the edge of the clapboards where splintering sometimes occurs. After the sanding the wood should be dusted carefully. Sanding and dusting between coats is a decided help in getting good appearance in the finished job as it removes surface dirt and roughens the surface slightly so that the following coat of paint can secure better anchorage.

Knots

Knots and sappy streaks in new wood should be shellacked, after the priming coat is dry, with pure shellac varnish, brushed out very thin. (See Figure 24, page 114.) When the lumber is extremely knotty, less oil and more turpentine may be used than the formula calls for, as too much oil on the knots causes later coats to draw and check. (See Figure 17, page 111.)

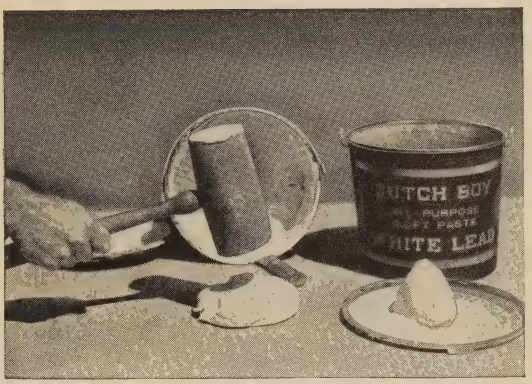


Figure 2—*Making Putty*

Puttying

Practically every surface, whether the job is a repaint or a new job, has certain defects such as nail holes, cracks, knot holes and dents. These should be filled with putty. On repaint work the putty should be applied after the first coat has dried and hardened, and on new work, after the priming coat has dried and hardened.

Good commercial putty consists of white-lead and pure whiting ground to proper consistency in pure linseed oil. Putty containing petroleum and marble dust often mars an otherwise good painting job by showing yellow through the top coat.

High quality putty can be made by using Dutch Boy soft paste white-lead as a base and adding to it approximately an equal weight of fine bolted whiting. The operation may be described as first mixing the two ingredients together, then kneading the mixture with the hands and finally beating

it with a wooden mallet until the consistency is correct. Such a putty is excellent not only for repairing surface defects but also for glazing.

Mix Sufficient Paint

Be sure to mix enough paint to do the job. It is better to have some left than to run short, especially if you are using a colored paint. There will be no waste, for with white-lead paint, the left-overs can be mixed together to make a good paint for cellar stairs, roof valleys or gutters and various odd jobs where the color of the paint makes no material difference. If desired, a little lampblack may be added to produce a neutral shade.

Mix Paint the Day Before

It is good painting practice, although not necessary, to mix the paint 24 hours before it is used. Do not put in the drier or all the turpentine until just before application. Paint should be kept in fully sealed, air-tight containers if allowed to stand for any great length of time.

Minimum Temperature for Exterior Painting

Do no outside house painting in extremely cold, frosty or damp weather. Painting may be done in winter if care is taken to choose periods when the temperature is favorable (not lower than 50° F.) and surfaces are dry.

Moisture

Painting should be done in dry weather on dry surfaces. Moisture under paint is almost sure to cause trouble. (See Figure 20, page 112.)

Application

Use plenty of "elbow grease." Brush the paint out thoroughly. Do not flow it on. This applies to all coats and particularly to the priming coat.

Thickness of Coat

Two coats of paint, properly mixed and well brushed out, are always better than one thick, heavy coat. (See Figure 23, page 114.)

Time Between Coats

Allow plenty of time between coats for the paint to dry. Outside work should be allowed to dry not less than three days (a week is still better). Be sure the previous coat is hard as well as dry, as painting over a "soft" surface is likely to reduce the gloss of the finish coat and cause checking or alligatoring. (See Figures 17 and 18, page 111.)

Keeping Pigment Soft

Unused portions of a keg of white-lead (or red-lead) may be kept soft and free from skins by pouring water over the surface to the depth of an inch or more, and keeping the lid on the keg. First of all, however, the lead should be scraped down from the sides of the keg. When the material is to be used frequently it may be more convenient to cut a disk of paper to fit inside the keg and lay it on the lead.

Care of Brushes

Good painting calls for a good paint brush. A good paint brush deserves good care.

A brush which is in daily use can be kept clean

and fresh overnight by wrapping in several thicknesses of paper. Of course, if it has been used to apply a spirit varnish such as shellac, it should be washed out in alcohol immediately. Varnish dries and hardens quickly and it is very difficult to soften a hardened brush.

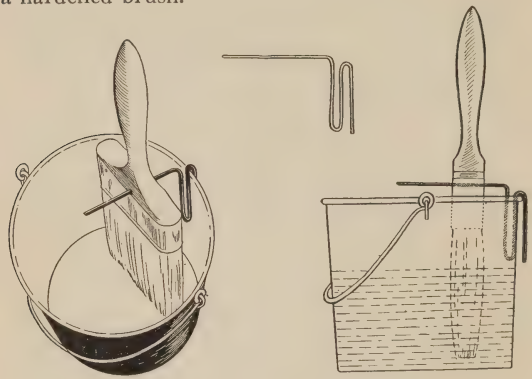


Figure 3—*Simple "Brush-keeper"*

A brush which is not to be used for a short interval, such as a week or ten days, may be kept in some form of what painters call a "brush-keeper." A simple "brush-keeper" can be made from a 50-pound white-lead pail partly filled with kerosene or turpentine. The brush is suspended in the keg by a wire inserted through the handle and hooked over the edge or over a rod laid across the opening. In either case, the bristles of the brush should be immersed in the liquid without touching the bottom.

Painting Wood Shingles (Siding)

Wood shingles which have been painted previously with an oil paint and are in a suitable condi-

tion for repainting should receive a first coat based on Formula No. 5c on page 14. This should be followed by a finishing coat based on Formula No. 6c for a gloss finish, or Formula No. 7c if a flat finish is preferred.

If the shingles have never been painted or stained, first remove any dirt or other foreign matter from the surface. Then give the shingles three coats of paint mixed according to Formulas No. 8c, No. 9c, and No. 6c or No. 7c.

Where dark colors with no white-lead are required, refer to pages 72 to 74.

When it is necessary to paint new exterior wood shingles with two coats, as is sometimes the case, the priming coat should be mixed on the basis of 100 lbs. of white-lead, 2 gallons of linseed oil and 2 gallons of Lead Mixing Oil. This primer should be used only on wood shingles—not on clapboard, trim, sash and other smooth surfaced wood. The finish coat should be mixed on the basis of 100 lbs. of white-lead and 3 gallons of Lead Mixing Oil.

When a previously stained surface is to be painted, and the nature of the stain is not known, some white-lead paint should be applied to a portion of the surface as a test. If, after a week or two, the stain does not show a tendency to "bleed" through the paint applied over it, it is reasonable to assume that the entire surface may be painted without danger of discoloration. If discoloration does occur on the test portion, the shingles should be either re-stained or painted a very dark color that will make subsequent discoloration inconspicuous.

Staining Wood Shingles and Rough Siding

A small amount of tinting material, sufficient to stain the shingles or siding to the desired color, should be added to a mixture of one part Dutch Boy flatting oil (or turpentine) and two parts Dutch Boy boiled linseed oil. A mixture of three parts Dutch Boy Lead Mixing Oil and one part Dutch Boy linseed oil, boiled or raw, may also be used.

In order to obtain the desired color it is necessary only to add the proper colors in oil. The color formulas which follow give the amounts of Dutch Boy colors in oil required for each gallon of the above liquid mixture to produce the more common colors.

Gray

12½ pounds Dutch Boy white-lead
touch of Dutch Boy lampblack

Deep Red Brown

1 pt. Dutch Boy indian red

Bright Red

1 pt. Dutch Boy venetian red

Permanent Green

¾ pt. Dutch Boy chromium oxide

Fairly Permanent Green

1½ pts. Dutch Boy medium chrome green

Golden Brown

¼ pt. Dutch Boy raw italian sienna
¾ pt. Dutch Boy burnt turkey umber

Seal Brown

1 pt. Dutch Boy raw turkey umber

Deep Brown

1 pt. Dutch Boy burnt turkey umber

Note: While creosote oil sometimes is used for staining shingles and rough siding, it is not needed to produce a good, penetrating stain and will probably cause trouble if the surface is painted in the future. Creosote stains beneath a coat of paint usually "bleed" through and cause discoloration.

Painting Exterior Wood Floors

The same precautions must be taken in preparing to paint a floor as in the preparation of any other surface. If the old paint is rough and scaly or thick and gummy, the floor should be cleaned down to the wood by planing, by burning and scraping or by the use of a paint remover. If a remover is used, the surface must be brushed afterward with a coat of strong vinegar to neutralize all remaining traces of alkali and then thoroughly washed with water. Make sure that every part of the floor is firm and solid. After sandpapering and cleaning, the floor is ready for painting.

Priming Wood Floors

If the floor is of white pine, poplar, hemlock, or other soft wood, use Formula No. 10c on page 15 for the first coat. If the floor is of hard wood—oak, maple, ash, yellow pine or walnut—use the same formula but reduce the linseed oil by ½ gallon.

In applying, use a brush well filled with paint and brush out well. One cause of sticky floors is flowing the paint on so thick that it does not dry properly, and then hurrying too much with the other coats.

After the priming coat is dry, all joints, cracks, nail holes and other defects should be filled with putty. The putty should be firmly pressed into the joints or holes and smoothed over with a putty knife. When the putty is entirely dry, sandpaper.

Body and Finishing Coats

For the body or second coat and the finishing or third coat on new floors, whether the wood is soft or hard, use Formulas No. 11c and 12c respectively. These same formulas should be used in repainting wood floors with two coats.

For porch floors a varnish should be used that will withstand outside exposure.

Two things to keep in mind throughout the work are: first, vigorous brushing to spread out each coat to the utmost; second, allowing each coat at least four days to dry.

Underside of Porch Floors

Porch floors should have protection against moisture from the damp space beneath the porch. This space is frequently left without sufficient ventilation. If the soil is damp the wood absorbs moisture, which may cause blistering and peeling of the paint on the top surface of the floor. To avoid trouble of this sort the underside of the floor, also the tongue and groove edges of the boards, should be painted before the floor is laid. Or, if it is too late for this and there is room to work, a coat of paint on the underside will still be a good safeguard.

Use paint mixed according to Formula No. 2c on page 14 for this purpose.

CHAPTER III
Brick, Stucco, Concrete and Stone Painting

PAINT has been used on exterior stucco, concrete, stone and brick surfaces for many years, in fact since Colonial times. It has been only within the present decade, however, that there has been a steady increase in the demand for paint on masonry surfaces. Today there is a definite style trend toward painted brick, concrete and stucco. In one survey which was made to determine the extent to which paint was being used on masonry surfaces, it was found that in the case of more than 60 per cent of the dwellings where stone, concrete, brick or stucco was used, either alone or in combination with some other materials, these surfaces were painted.

The most important reason for painting masonry surfaces is decoration. Paint provides color and a uniformity of appearance which effectively enhances the architectural features of a building.

Another reason for painting masonry surfaces, particularly brick, is to brighten rooms which face

BRICK, STUCCO, CONCRETE & STONE PAINTING FORMULAS APPEAR ON PAGES 34 AND 35

*Previously Painted Brick, Stucco, Concrete and Stone**

	First Coat	Finish Coats	
		(Flat)	*(Gloss)*
Materials	**Formula No. 13c**	**Formula No. 14c**	**Formula No. 15c**
Dutch Boy white-lead	100 lbs.	100 lbs.	100 lbs.
Dutch Boy linseed oil	2½ gals.	.....	3¼ gals.
Dutch Boy Lead Mixing Oil	2½ gals.	4 gals.	.....
Dutch Boy liquid drier	.....	.....	1 pint
Gallons of paint produced	8¼	7¼	6⅝
Sq. ft. covered per gal., 1 coat	400	400	500

(ALTERNATE FORMULAS)

	First Coat	Finish Coats	
		(Flat)	*(Gloss)*
Materials	**Formula No. 16c**	**Formula No. 17c**	
Dutch Boy white-lead	100 lbs.	100 lbs.	
Dutch Boy linseed oil	2 gals.	.....	Use
Spar varnish	.....	¾ gal.	Formula
Pure turpentine	1¼ gals.	1¼ gals.	No. 15c
Dutch Boy liquid drier	1 pint	½ pint	
Gallons of paint produced	6⅝	5¼	
Sq. ft. covered per gal., 1 coat	400	500	500

New Brick (Common Type)

	Priming Coat	Second Coat	Finish Coat
Materials	**Formula 18c**	**Formula 19c**	
Dutch Boy white-lead	100 lbs.	100 lbs.	Use
Dutch Boy linseed oil	5 gals.	3 gals.	Formula
Pure turpentine	¾ gal.	1 gal.	No. 14c
Dutch Boy liquid drier	1 pint	1 pint	or No. 15c
Gallons of paint produced	9⅛	7⅜	
Sq. ft. covered per gal., 1 coat	200	400	500

New Brick (Face or De-aired Type)

	Priming Coat	Second Coat	Finish Coat
Materials	**Formula 20c**	**Formula 21c**	
Dutch Boy white-lead	100 lbs.	100 lbs.	Use
Dutch Boy linseed oil	4 gals.	2½ gals.	Formula
Pure turpentine	¾ gal.	1 gal.	No. 14c
Dutch Boy liquid drier	1 pint	1 pint	or No. 15c
Gallons of paint produced	8⅛	6⅞	
Sq. ft. covered per gal., 1 coat	300	400	500

New Stucco, Concrete and Stone

	Priming Coat	Second Coat	Finish Coat
Materials	Use Formula No. 13c	**Formula No. 22c**	Use Formula No. 14c or No. 15c
Dutch Boy white-lead		100 lbs.	
Dutch Boy Lead Mixing Oil		3 to 4 gals.	
Gallons of paint produced		6¼ to 7¼	
Sq. ft. covered per gal., 1 coat	200	400	600

(ALTERNATE FORMULAS)

	Priming Coat	Second Coat	Finish Coat
Materials	**Formula No. 23c**	Use Formula No. 16c	Use Formula No. 15c or No. 17c
Dutch Boy white-lead	100 lbs.		
Dutch Boy linseed oil	3 gals.		
Spar varnish	2 gals.		
Pure turpentine	1¼ gals.		
Dutch Boy liquid drier	1 pint		
Gallons of paint produced	9⅝		
Sq. ft. covered per gal., 1 coat	200	400	600

Concrete Floors

	Priming Coat	Second Coat	Finish Coat
Materials	Use Formula No. 13c or No. 23c	**Formula No. 24c**	high grade floor enamel
Dutch Boy white-lead		100 lbs.	
Dutch Boy linseed oil		½ gal.	
Pure turpentine		2¼ gals.	
Dutch Boy liquid drier		½ pint	
Gallons of paint produced		6	
Sq. ft. covered per gal., 1 coat	200	400	

* If painted with an oil-base paint. If previous paint was a water paint follow directions on page 40.

●

HEAVY PASTE

All formulas on these pages are based on the use of soft paste white-lead. If heavy paste is used add 1 quart of turpentine to all formulas except Nos. 13c, 14c and 22c.

BOILED LINSEED OIL

If boiled linseed oil is used omit drier called for in formulas.

on light wells or courts. Ordinary red brick absorbs about 80 per cent of the light which reaches it and reflects only 20 per cent. If the brick is painted white these figures can be reversed. Therefore, if the brick courts and light wells are painted, more light will reflect through the windows, and rooms facing the painted walls will be brighter and more liveable. Light-colored paint reflects heat as well as light, and white or light-colored paint on brick or stucco will tend to reduce the temperature of the interior of a house in hot weather.

Another reason for painting masonry is to waterproof the surface. Unpainted brick and stucco will absorb considerable moisture. In fact there have been many instances where brick and stucco walls have been so permeable to moisture that the interior plaster and decorations have been harmed by water seeping through the walls. A waterproof paint on the exterior of the walls will prevent this and also prevent moisture from corroding the steel lath or reenforcing metal or rotting away the wood within the wall interior.

White-lead, properly mixed and applied, is very satisfactory for all masonry surfaces, for this type of paint will waterproof the surface, has excellent adhesion and will always be a good foundation for all subsequent painting jobs. The finish can be either gloss or flat. However, for most masonry surfaces a flat paint is considered to be the more decorative.

In painting concrete, brick, stucco and other masonry surfaces it is necessary to observe three precautions to insure a satisfactory job. The pre-

cautions are reasonable and their strict observance will insure a good paint job.

First—The surface should be properly prepared for painting.

Second—Free surface alkali must be neutralized by chemical solution or by sufficient exposure to air.

Third—The surface and the wall interior must be dry.

Preparing the Surface

All loose material should be removed from the surface and all cracks and other openings which may allow water to enter should be filled before painting. Otherwise moisture may enter and cause the paint to peel from the surface. Minor cracks may be filled with Portland cement. For large cracks extending through the wall, however, a soft plastic material is preferred for caulking because a hard, non-plastic material in thick exterior walls will not remain permanently in place.

Portland cement is used almost exclusively today to prepare mortar for exterior brick and as the cementing material in stucco. Portland cement is also used in concrete. Sometimes lime is used with it in order to improve the working and handling properties of the mixture. Unneutralized lime contains soluble alkaline substances which are harmful to oil base paints. The presence of these soluble alkaline compounds on the surface is a temporary condition as they are neutralized by exposure to the air and once they have been neutralized, the surface can safely be painted, provided, of course, that more

of the reactive chemicals are not carried to the surface by moisture.

A few months' exposure to the air neutralizes these alkaline compounds because the small percentage of carbon dioxide gas in the air has great affinity for them and combines with them so as to counteract their chemical activity and prevent them from injuring paint.

If it is not convenient to allow time for the neutralization of the surface alkaline substances by the air, they may be artificially neutralized by giving the surface a wash with a chemical solution prepared by dissolving two pounds of zinc sulphate in one gallon of water.

Whenever a wall is wet or damp, moisture from the interior will be drawn to the surface. This moisture will contain soluble alkaline compounds which the air has not neutralized, and these will have a harmful effect on the paint. For this reason it is important that all masonry surfaces be dry when painted and that precautions be taken to prevent moisture from gaining entrance into the interior of the walls.

If the surface has been previously painted with any type of water paint, it is most important that it be thoroughly wire brushed to remove all loose paint before the priming coat is applied.

At the time of painting both the surface and the interior of the wall must be dry. The walls of new masonry structures always contain large amounts of water because water is required for the chemical cementing action which takes place in concrete, mortar and stucco. The time required for the water

to evaporate depends upon many factors including the thickness of the wall, the degree of air circulation and the weather conditions. It is always good practice to delay painting the walls of a new building until there is a certainty that the walls are dry.

On all masonry surfaces, new or old, the priming coat paint should not be applied until there has been at least three or four days or even a week of clear dry weather. Even in clear weather, if the air is exceptionally humid, it is advisable to wait until dryer conditions prevail. Also no painting should be done when the temperature is below 50° Fahrenheit.

Stucco of magnesite composition should never be painted with oil paint.

Estimating Quantity of Paint

It can readily be appreciated that surfaces of the type discussed in this chapter vary greatly in degree of roughness and absorbency. For this reason it is impossible to give a coverage figure that will be absolutely accurate in every case, but it will be found that 200 square feet per gallon for the priming coat, 400 square feet for the second and 600 square feet for the finishing coat are conservative averages.

Number of Coats

It is strongly recommended that surfaces not previously painted or from which all previous paint has been removed receive three coats—a priming coat, a second coat and a finishing coat.

If a two-coat job is desired, use Formula No 14c on page 34 for the first coat. Use the same formula, modified by reducing the Lead Mixing Oil to 3 gallons, for the finishing coat.

Exterior surfaces that have been painted previously with an oil paint should receive two coats —a first coat and a finish coat.

Repainting Exterior Brick, Stucco Concrete and Stone

Over Oil Paint

Any of the above surfaces that have been previously painted with properly designed oil paint need no special preparation or priming. Simply dry brush the surface and apply two coats of paint mixed according to Formula No. 13c and Formula No. 14c (for flat finish) or Formula No. 15c (for gloss finish).

If the old oil paint is blistering, cracking and scaling, it should be removed by wire brushing before repainting. Apply a priming coat (Formula No. 13c, 18c or 20c) on the bare spots, and when this is dry and hard, repaint the entire surface as in the previous paragraph.

Over Water Paint

If the old paint was a water paint, wire brush the entire surface thoroughly and apply three coats as follows: a first coat (Formula No. 13c), a second coat (Formula No. 22c) and a finish coat (Formula No. 14c or 15c).

Painting New Brick, Stucco Concrete and Stone

Brick surfaces are of two types—common brick and face or de-aired brick. The two types must be painted differently because the first type is much more porous than the second. Common brick that has not previously been painted should receive three coats mixed respectively according to Formulas No. 18c, No. 19c and No. 14c or 15c. Face or de-aired brick should receive three coats mixed according to Formulas No. 20c, No. 21c and No. 14c or 15c.

Surfaces of stucco, concrete or stone, whether new surfaces or surfaces from which all previous paint has been removed, should receive three coats as follows: a first coat (Formula No. 13c), a second coat (Formula No. 22c) and a finish coat (Formula No. 14c or 15c).

Brick Red Finish

A good brick red finishing coat can be prepared by reducing 2 quarts of Dutch Boy venetian red with 3 pints of Dutch Boy Lead Mixing Oil.

A lighter brick red can be made by reducing 2 quarts of Dutch Boy venetian red and 1 pint Dutch Boy french ochre with 3 pints of Dutch Boy Lead Mixing Oil.

Either of these paints will cover about 700 square feet per gallon, one coat. They should be applied over the regular white-lead coats as previously specified.

Painting Concrete Floors

The same formula used for the priming of stucco, concrete and stone (Formula No. 13c) may be used in priming concrete floors. However, if Dutch Boy Lead Mixing Oil is not available, Formula No. 23c may be used, substituting floor varnish for the spar varnish listed.

After the priming coat is dry all cracks and other defects in the floor should be filled with a good putty. The putty should be firmly pressed into the cracks and smoothed over with a putty knife. An excellent putty may be made from Dutch Boy soft paste white-lead, dry whiting and linseed oil in accordance with the directions given on page 25.

The second coat paint should be mixed according to Formula No. 24c.

If the floor is to be finished with a coat of wax or high grade floor varnish, this formula may also be used as a third coat. Otherwise finish the floor with a high grade floor enamel.

In painting concrete floors, two precautions should be observed in order to insure a completely satisfactory job. First, each coat of paint should be brushed out carefully to a thin, even film. When floor paint is flowed on the surface in such a manner as to form a heavy, thick film, the under portion of the paint film may remain soft for some time after the outer portion has dried to the touch. If the floor is walked on while the paint is in this condition, it is obvious that the outer film will be broken through and the appearance of the paint job will be spoiled. Second, plenty of time should be

allowed between coats to make sure the paint dries thoroughly. At least four days drying time should be allowed between each coat. An excessively thick film or insufficient drying time are two common causes of the stickiness of paint on floors.

Alternate Procedure

If Dutch Boy Lead Mixing Oil is not available for the painting of brick, stucco, concrete and stone, the alternate formulas listed on pages 34 and 35 may be used.

FORMULAS

FOR

INTERIOR WOOD PAINTING

Previously Painted Wood

	First Coat	Finish Coats	
		(Flat)	*(Semi-Gloss)*
Materials	**Formula No. 25c**		**Formula No. 26c**
Dutch Boy white-lead	100 lbs.	Use	50 lbs.
Dutch Boy Lead Mixing Oil	3 to 4 gals.	Formula	1½ gals.
Dutch Boy wall primer	.....	No. 25c	3 gals.
Gallons of paint produced	6¼ to 7¼		6⅛
Sq. ft. covered per gal., 1 coat	800	800	800

•

New Wood

	Priming Coat	Second Coat	Finish Coat
Materials	**Formula No. 27c**		Use
Dutch Boy white-lead	100 lbs.	Use	Formula
Dutch Boy linseed oil*	3 gals.	Formula	No. 25c
Pure turpentine	2 gals.	No. 25c	or
Dutch Boy liquid drier	1 pint		No. 26c
Gallons of paint produced	8⅜		
Sq. ft. covered per gal., 1 coat	700	800	800

* If boiled linseed oil is used omit drier called for in formula.

•

HEAVY PASTE

The formulas on this page are based on the use of soft paste white-lead. If heavy paste is used increase the turpentine in Formula No. 27c to 2¼ gallons.

•

CHAPTER IV
Interior Wood Finishing

THE same general principles that apply to the painting of exterior wood may be laid down for the painting of interior wood. But the formulas for mixing differ due to the fact that paint on interior wood is not exposed to the weather and therefore, the finish may be an enamel gloss, a dead flat, or any intermediate finish.

Before making the paint, refer to the mixing directions on pages 18 and 19. Also see the volume mixing directions in the front of this book.

Preparing the Surface

New woodwork should be sandpapered smooth where necessary and dusted clean before priming.

Old painted or varnished woodwork that is in good condition needs no special preparation except a light sandpapering and dusting.

Old painted or varnished woodwork that shows bad cracking, checking, or scaling, should be stripped by means of a good paint and varnish remover, and then cleaned with benzine or turpentine. It should then be painted as new wood.

Woodwork that is greasy, or coated with wax should be scrubbed clean with turpentine or benzine before painting.

Woodwork that has been stained walnut, mahogany, or some other dark color, with a penetrating stain, needs special preparation before painting. Penetrating stains usually remain soluble. When a light-colored paint is applied over them, the coloring material in the stain dissolves in the vehicle of the paint and discoloration results.

If the surface is sandpapered and then given two or three thin coats of good rosin-free shellac before painting, the bleeding usually does not occur. When in doubt as to whether a dark color will bleed, apply a little light-colored paint on an inconspicuous portion of the surface. Allow this test part to dry and harden thoroughly. If no discoloration occurs within two weeks the shellacking should not be necessary.

Number of Coats

If the wood has been painted before and the old paint is still in good condition, two coats are sufficient, no priming coat being required.

Three coats are recommended for inside wood which has never before been painted or from which all previous paint has been removed—a priming coat, a second or body coat, and a third or finishing coat.

If a two-coat job on unpainted wood is desired, use Formula No. 25c as a priming coat followed by the desired finishing coat. To make the two coats hide better, tint the first coat to approximately the same color as the finish coat.

Of course, if one is seeking the very best type

of interior finish, two coats cannot be expected to do the job as well as three.

Estimating Quantity of Paint

Treat all doors and large areas of woodwork, such as wainscoting, as if they were plain rectangular shapes, multiplying height by width to arrive at the area. Divide the result by 800 (700 in case of the priming coat). The answer is the number of gallons of paint needed for one coat. For other woodwork, such as window frames, baseboard, molding, etc., simply figure about one pint of paint for every hundred running feet.

Repainting Interior Wood

Two coats are enough in repainting interior wood when the old paint is not removed down to the wood. Simply apply two coats mixed according to Formula No. 25c, or, if a semi-gloss finish is desired, use Formula No. 26c for the second coat.

If the paint is to be colored, tint it as explained in Chapter VI. The amounts of tinting material needed for various interior colors will also be found in this same chapter.

Painting New Interior Wood

New interior wood should receive three coats of paint, a priming coat mixed according to Formula No. 27c; a second coat based on Formula No. 25c and a final coat mixed according to the finish desired (Formula No. 25c or Formula No. 26c).

As on outside wood, the painter may exercise his discretion in reducing the quantity of linseed oil in the priming coat for woods which are less absorbent such as southern yellow pine, white spruce, hemlock and cypress. The amount of turpentine should be increased correspondingly.

Semi-gloss Finish

An excellent semi-gloss paint is made by Formula No. 26c which consists of equal volumes of flat finish paint (Formula No. 25c) and Dutch Boy wall primer. This should be applied over paint mixed according to Formula No. 25c.

Enamel Finish

For an enamel finish any high grade prepared enamel may be used in place of the finish coats specified previously.

Alternate Procedure

If Dutch Boy Lead Mixing Oil is not readily available, follow the alternate formulas listed under Wall Painting on pages 54 and 55.

Antique or Old Ivory Finish

This effect is produced by brushing a thin glaze over the painted surface after it is thoroughly dry. The glaze is composed of one quart of Dutch Boy flatting oil tinted with a tube of Dutch Boy burnt umber.

This glaze should be applied over a workable portion of the surface, and before it has set up, it should be removed from the raised parts of the trim

by wiping with a clean rag. The small amount of glaze remaining in the depressed portions gives the antique effect required.

Silver Gray Effect

A silver gray effect may be produced on open grained woods, such as oak and chestnut, which have definite depressions or checks that will retain colored filler. This treatment is not suitable for use on smooth or close grained woods. To produce the effect, the new wood should be given a coat of filler made up of three parts by weight of Dutch Boy white-lead and two parts by weight of fine silica.

Reduce to a thin paint by the addition of equal parts turpentine and good coach japan. After application, this paint should be permitted to set, but before it has hardened, the wood should be rubbed cross-grain with stiff felt or some other suitable material, to force the filler into the grain of the wood, removing all excess filler. The filler may be colored slightly to provide a grayish cast, by the addition of a small amount of Dutch Boy prussian blue or Dutch Boy lampblack. When the filler has hardened, the work can be finished by oiling or waxing as desired.

Staining Interior Wood

In staining new interior wood a coat of flatting oil or of liquid composed of equal parts of raw linseed oil and turpentine should first be applied to make an even foundation for the stain. If this precaution is not taken, the stain will strike in

here and there, appearing dark in some spots and light in others. The stain should be applied while the surface is still wet. After the stain has been on the surface for five or ten minutes wipe off the surplus with a dry cloth. When the stain has thoroughly dried, apply shellac and then finish by waxing or varnishing.

The tinting material to produce the desired color of stain should be added to straight Dutch Boy flatting oil. An alternate mixture may be used of one part Dutch Boy raw linseed oil and one part pure turpentine plus ½ part Dutch Boy liquid drier.

The following approximate color formulas are based on one gallon of staining liquid.

Cherry

1½ pts. Dutch Boy burnt sienna

Mahogany

1 pt. Dutch Boy vandyke brown
½ pt. Dutch Boy rose lake

NOTE: Vary the proportions of the above colors to get the depth of mahogany desired.

Light Oak

1 pt. Dutch Boy raw sienna
¼ pt. Dutch Boy raw umber

Dark Oak

1 pt. Dutch Boy raw sienna
½ pt. Dutch Boy burnt umber
touch of burnt sienna

Old Maple

½ pt. Dutch Boy raw sienna
½ pt. Dutch Boy burnt sienna
½ pt. Dutch Boy raw umber

Walnut

1½ pts. Dutch Boy vandyke brown
(or)
1 pt. Dutch Boy burnt sienna
¼ pt. Dutch Boy dropblack

NOTE: If the color of black walnut is desired, add more dropblack.

GRAINING INTERIOR WOOD

A ground should first be prepared by painting the wood in the usual way. The paint should be tinted as follows, according to the wood to be imitated. The quantities are based on the use of 100 lbs. of white-lead.

Cherry

½ gal. Dutch Boy venetian red
½ gal. Dutch Boy french ochre

Mahogany

1 gal. Dutch Boy venetian red
½ gal. Dutch Boy french ochre

Light Oak

1 qt. Dutch Boy french ochre
½ pt. Dutch Boy medium chrome yellow

Dark Oak

½ gal. Dutch Boy french ochre

Old Maple

⅛ pt. Dutch Boy C. P. orange chrome yellow

Walnut

1 qt. Dutch Boy raw sienna
½ pt. Dutch Boy burnt umber

Graining Colors

Follow the color formulas given under "Staining" for the graining liquid to apply over the painted ground when dry. The colors in oil should be thinned to brushing consistency with Dutch Boy flatting oil or a mixture of 2 parts Dutch Boy linseed oil, 3 parts pure turpentine and 1 part Dutch Boy liquid drier.

This graining color should be applied and, while still wet, should be dragged, combed, or otherwise figured to imitate the grain of the wood being reproduced. When dry, the work may be finished by waxing or varnishing.

Painting Interior Wood Floors

The procedure to be followed in painting interior wood floors is exactly the same as that used in painting exterior wood floors. See section "Painting Exterior Wood Floors," page 31.

CHAPTER V

Interior Wall Painting

THE factors to consider in the treatment of interior wall surfaces are beauty, cleanliness and economy. Beauty involves color and type of finish. Cleanliness depends upon washability. Economy has to do with cost and years of wear. These three results are best secured by the use of pure white-lead paint.

Preparing the Surface

Before applying any paint, be sure that the plaster or old paint is clean and smooth. Go over the wall lightly with fine sandpaper or a wide putty knife to remove grit, loose plaster or paint, taking care not to scratch the surface.

Fill all cracks and holes with patching plaster. The proper filling of cracks is essential to a good-appearing and permanent paint job on plaster. The plaster should be first cut out in the shape of an inverted V or triangle as shown in Figure 4 on page 56.

FORMULAS FOR PAINT FOR INTERIOR WALL SURFACES APPEAR ON PAGES 54 AND 55

Previously Painted Plaster

	First Coat		Finish Coats	
		(Flat)	*(Flat Stipple)*	*(Semi-Gloss)*
Materials	**Formula No. 28c**		**Formula No. 29c***	**Formula No. 30c**
Dutch Boy white-lead	100 lbs.	Use	100 lbs.	50 lbs.
Dutch Boy Lead Mixing Oil	3 to 4 gals.	Formula No. 28c	2 gals.	1½ gals.
Dutch Boy wall primer	.....		.....	3 gals.
Gallons paint produced	6¼ to 7¼		5¼	6⅛
Sq. ft. per gal., 1 coat	800	800	600	800

(ALTERNATE FORMULAS)

	First Coat	Finish Coats	
		(Flat)	*(Semi-Gloss)*
Materials	**Formula No. 31c**	**Formula No. 32c**	**Formula No. 33c**
Dutch Boy white-lead	100 lbs.	100 lbs.	100 lbs.
Floor varnish	¾ gal.	1 pint	1¼ gals.
Pure turpentine	1¼ gals.	1¾ gals.	¾ gal.
Dutch Boy liquid drier	½ pint	½ pint	½ pint
Gallons of paint produced	5¼	5⅛	5¼
Sq. ft. covered per gal., 1 coat	800	800	800

* When a somewhat sharper stipple is desired, use 1½ gallons Dutch Boy flatting oil instead of 2 gallons of Dutch Boy Lead Mixing Oil in this formula.

Unpainted Plaster

	Priming Coat	Second Coat	Finish Coat
	Dutch Boy Wall Primer or **Formula No. 34c**		
Materials			
Dutch Boy white-lead	100 lbs.	Use Formula No. 28c	Use Formula No. 28c, 29c or 30c
Dutch Boy Lead Mixing Oil	4 to 5 gals.		
Gallons of paint produced	7¼ to 8¼		
Sq. ft. covered per gal., 1 coat	800	800	800

(ALTERNATE FORMULAS)

	Priming Coat	Second Coat	Finish Coat
	Formula No. 35c		
Materials			
Dutch Boy white-lead	100 lbs.		Use Formula No. 32c or No. 33c
Dutch Boy linseed oil†	3 gals.	Use Formula No. 31c	
Floor varnish	2 gals.		
Pure turpentine	1¼ gals.		
Dutch Boy liquid drier	1 pint		
Gallons of paint produced	9⅝		
Sq. ft. covered per gal., 1 coat	800	800	800

† If boiled linseed oil is used omit drier called for in formula.

HEAVY PASTE

All formulas on these pages are based on the use of soft paste white-lead. If heavy paste is used add 1 quart of turpentine to all formulas except Nos. 28c, 29c, 30c and 34c.

Figure 4

A—Correct method of cutting, the "V" being inverted so that its point is on the surface. B—Wrong method of cutting "V".

The edges of the opened crack should be soaked with water to aid the patching plaster in forming a bond with the old wall. Fill the crack to within a quarter inch of the surface and allow the patching plaster to set partially before leveling up to the wall surface.

All loose dust and dirt should be removed before painting. If the surface is excessively dirty or covered with grease, it should be washed. This is especially true of kitchen, bathroom and laundry walls and ceilings.

It is always advisable to allow new plaster at least six months to dry and season thoroughly before attempting to paint it. Fresh plaster contains free alkali which has a tendency to keep paint from drying properly and to cause colors to bleach out.

Many people do not care to let their walls go unpainted for six months. In such cases, it is possible to artificially "age" the new plaster with a solution made by dissolving two pounds of zinc sulphate in one gallon of water. After this solution is applied, sufficient time is allowed for the plaster to dry before priming.

Painting Over Calcimined Walls

Walls that have been previously calcimined should be washed thoroughly with a sponge and warm water before applying the priming coat. Any calcimine left on the old surface will prevent the new paint from adhering properly.

Painting Over Wallpaper

Painting over wallpaper is not a good practice because, once the paint has been applied, it is difficult, if not impossible, to remove the paper at any time thereafter without damage to the plaster.

However, if circumstances require that the paper be painted, it can be done successfully provided there is but one layer on the wall and that layer in good condition. Before painting, all sections of loose paper should be torn away and if there are any plaster cracks or defects underneath, they should be filled with patching plaster. Any roughness after the plaster is dry should be rubbed down with No. 0 sandpaper. Painting is then done as if on bare plaster.

Some wallpapers contain colors which bleed i.e. when any light paint is applied over them the oil in the paint dissolves the color in the paper and this color comes through and discolors the paint. If this difficulty is anticipated it would be well to test a little paint on a section of the paper. If discoloration results it would probably be easier to remove the paper than to attempt to stop the bleeding.

If the paper is textured, it should be remembered that paint will not hide the texture.

Removing Wallpaper

To remove wallpaper, use a broad knife or similar tool after first wetting the paper thoroughly with warm water. The plaster should then be washed to remove all traces of paste. If the surface uncovered is unpainted or in a porous condition, it should be treated according to the directions for painting new plaster walls.

Estimating Quantity of Paint

To find the area of wall surface to be painted, measure the distance around the room and multiply by the distance between the baseboard and the picture molding or ceiling. Subtract from this figure the area occupied by the doors and windows. Divide the result by 800, which is about the number of square feet of surface one gallon of flat paint will cover. The answer is the number of gallons of paint needed for one coat on the side wall area.

To find the area of the ceiling, multiply the width by the length. To this figure, add the area of the four strips of wall surface above the picture molding. Divide the total area thus obtained by 800, which gives the number of gallons of paint needed for one coat on the ceiling.

If walls or ceiling are irregular in shape, divide into rectangles, figuring separately the area of each rectangle. The sum of the areas gives the total amount of surface to be painted and dividing by 800 gives the number of gallons of paint needed for one coat on smooth plaster.

If a plaster surface is very porous or has a rough finish, a spreading rate figure of less than 800

should be used in estimating the number of gallons of paint needed for the priming coat. The spreading rate of a primer on some rough, porous, sand finish plaster, for example, may be as low as 350 square feet per gallon. A lower figure should also be used in estimating priming coat requirements on certain types of composition wall board. On very porous wall board, the spreading rate of a primer may be only 175 square feet per gallon. On types with a hard surface, it may run as high as 800 square feet per gallon.

Mixing the Paint

Formulas for white-lead paint for interior work are given on pages 54 and 55. Directions for mixing white-lead are given on page 18 in the chapter on exterior wood painting.

Number of Coats

If the surface has been painted before and the old paint is still in good condition, two coats are sufficient, no priming coat being required.

Three coats are recommended for interior plaster which has never before been painted—a priming coat, a second or body coat, and a third or finishing coat.

If a two-coat job on unpainted plaster is desired, use Dutch Boy wall primer for the first coat, followed by any of the finishing coat formulas on page 54. To make two coats hide better, tint the first coat to nearly the same color as the second coat.

Of course, two coats cannot be expected to give as fine a finish as three coats. In fact, experience

has shown that three coats on new plaster are practically always more satisfactory.

Repainting Plaster

Plaster that has previously been painted with an oil paint, and is in good condition, need not be primed. The old paint serves as the priming coat.

Simply apply Formula No. 28c as a first coat, and when this has properly dried and hardened, finish with another coat of Formula No. 28c, or if a stipple or semi-gloss finish is desired use Formula No. 29c or 30c respectively.

Painting New Plaster

Plaster that has not been previously painted with oil paint or from which the old paint has been removed should receive three coats of paint: (1) a priming coat of Dutch Boy wall primer or paint mixed according to Formula No. 34c; (2) a second coat based on Formula No. 28c; (3) a final coat mixed according to the finish desired (Formula No. 28c, 29c or 30c).

Stippling

A stippled effect is produced by striking the wet surface, before the paint has set, with a special type of brush known as a wall stippling brush. The ends of the bristles pick up the paint and redistribute it, resulting in a uniform pebbly surface that eliminates heavy brush marks or small surface blemishes. A paint coat that is to be stippled can be applied with less attention to even brushing. Thus

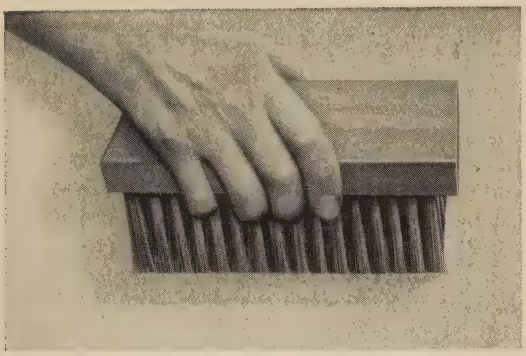


Figure 5—*Stippling Brush*

stippling adds little to the total time required for the job.

The stippling paint formula (Formula No. 29c, page 54) produces paint ideal for the purpose. However, a stipple with a somewhat sharper texture is obtainable when Dutch Boy flatting oil instead of Dutch Boy Lead Mixing Oil is used.

Semi-gloss Finish

An excellent semi-gloss paint is produced by Formula No. 30c which consists of equal volumes of flat finish paint (Formula No. 28c) and Dutch Boy wall primer.

Alternate Formulas

If Dutch Boy wall primer, Dutch Boy Lead Mixing Oil or Dutch Boy flatting oil are not available use the alternate formulas on pages 54 and 55.

Enamel Finish

For an enamel finish, a high grade prepared enamel may be used in place of any of the white-lead finish coats specified previously.

Applying Flat Paint

The beauty of a painted wall depends to a large degree on how the paint is applied, especially the final coat. Flat paint partially dries or "sets up" quite quickly and joints or laps will show if the work is not done properly.

Start at one end of the wall at the top, painting a section or "stretch" about three feet wide and work down (not across) the wall. When the bottom of the wall is reached, start another stretch about the same width, joining it to the first one and working down the wall as before. Repeat the process until the whole wall is painted.

Special care should be taken to keep the edge of the freshly painted surface wet. This is necessary in order to avoid lapping which occurs if the edge is allowed to set or dry.

Paint made from Dutch Boy white-lead and Dutch Boy Lead Mixing Oil or flatting oil has a relatively slow setting rate. Thus, there should be no difficulty in obtaining a good job when this paint is used.

Painting Wall Board

Composition wall board, which is used on many interiors to take the place of plaster, may be treated like plaster surfaces. Follow the recommendations given for painting plaster.

Certain types of wall board are of comparatively open texture and are more porous than plaster or highly pressed wall board. Therefore the spreading rate figures given under the priming coat formulas for painting plaster should be reduced to about 175 square feet per gallon on the more porous type.

Painting Fabric Coverings

To cover up present defects or to prevent later ones from showing, plaster walls are sometimes covered with muslin or a specially prepared fabric of some kind which is then painted. No difficulties are encountered in painting such fabric coverings. The painting is done in the regular way just as if plaster were being painted, and the finished job is practically indistinguishable from ordinary painted plaster. If the fabric has been previously treated with a size, no priming coat is necessary.

Washing Painted Walls

White-lead remains insoluble in water; so walls painted with it can be successfully washed. In fact, walls painted with white-lead and Lead Mixing Oil withstand frequent washings without apparent injury. In washing, the following procedure will be found effective.

A workable portion of the wall should be sponged with a good prepared paint cleaner or a soap solution, the work progressing from the baseboard toward the ceiling. This section should then be rinsed with clear water and the adjoining section cleaned in the same manner. This treatment should effec-

tively remove ordinary dust and dirt which accumulates on most walls.

White-lead and Oil Plastic Paint

Modified or low-relief wall finishes produced with white-lead and oil plastic paint are still a popular form of decoration on certain types of interiors. Plastic paint has the advantage of lending itself to a variety of interesting effects. (See pages 90 and 91.) It is relatively low in cost and it produces a durable finish which can be kept clean and fresh-looking by washing.

White-lead and oil plastic paint may be applied to any surface that is in fit condition to receive a finishing coat of paint—plaster, wall board, fabric wall coverings, brick, concrete, wood and glass. When it is to be applied on a new, unpainted surface, the regular procedure for priming should be followed. On surfaces previously painted with an oil paint, the primer may be omitted.

The paint should be mixed according to the following formula: 100 lbs. Dutch Boy white-lead, 22 lbs. dry whiting, 1¼ gals. Dutch Boy flatting oil and ¼ pint of Dutch Boy liquid drier. If heavy paste white-lead is used add one quart of turpentine to the foregoing formula.

If soft paste white-lead is used, thin the whiting with the flatting oil and mix thoroughly with the white-lead, adding the drier and such tinting colors as may be required.

If heavy paste white-lead is used, add half the flatting oil to the white-lead and use the remainder to thin the whiting. Then mix the two batches to-

gether thoroughly, adding the drier and tinting colors.

A gallon of white-lead and oil plastic paint will cover from 100 to 220 square feet, the difference in spreading rate depending upon the thickness of film required to produce the desired texture. The maximum coverage of 220 square feet to a gallon represents a spreading rate beyond which the plastic paint would be too thin for producing even the most modified relief effect. The minimum coverage of 100 square feet to the gallon represents a spreading rate which, if further reduced, will not give overnight drying. A coverage of 160 square feet per gallon is a fair average.

Plastic paint may be readily tinted. It can also be glazed later to lend additional color to the surface if such a procedure is desired.

In applying the paint, use an ordinary four-inch wall brush and coat only a workable section at a time. The surface may then be manipulated or textured with a brush, whiskbroom, sponge or any other implement. If too large an area is covered before the texturing is begun, the paint may have set up too much to be manipulated easily.

Hanging Canvas Murals

Canvas murals can be applied on any smooth, hard surface that has been properly prepared. Surfaces that are rough or open grained do not provide a thoroughly satisfactory ground for the application of canvas. When the canvas is to be applied over new, unpainted plaster, the walls should first receive a coat of Dutch Boy wall primer. After the

primer has been permitted to dry and harden thoroughly, a suitable adhesive should be applied to the wall.

An excellent adhesive for the purpose may be prepared by mixing a good quick-drying varnish with white-lead, in the proportion of 2½ gallons of varnish to each 100 pounds of white-lead. The mixture should be spread in a thin, uniform coating and the canvas then applied and rolled in the usual manner. In some instances it is advisable to treat the back of the canvas mural with a coat of very weak glue size. The outer surface of the mural should be protected with a covering sheet of painter's cloth or light canvas while the rolling is being done.

CHAPTER VI

Colored Paint

THE materials used for tinting white-lead paint are known as colors in oil. These are concentrated colors, some of which are manufactured from natural earths and others from chemical compounds. Both types are thoroughly mixed with oil to a consistency that can be easily incorporated into the white-lead paint, thus producing the desired color. They also may be used straight as self colors when properly thinned.

What to Look For in Oil Colors

High quality tinting materials should possess several desirable properties. First, they should be true in tone. The tone must be clean and pure, with no off casts of gray, blue or brown. This will facilitate the matching of color chips and insure pure, clean, lively tints.

Second, they should be high in tinting strength. This means that only a minimum quantity of color will be needed to produce a given tint, thus lessening costs.

Third, the tinting pigments should be extremely fine in order to develop full strength of color.

The final consideration is dispersion ability, which means quicker tinting action and less ten-

dency to form small lumps of concentrated color which may cause streaking.

Dutch Boy Colors in Oil

All these qualities are present in Dutch Boy colors which are especially made for the convenient, economical and efficient tinting of white-lead paint. The Dutch Boy color in oil line is complete in range, containing all of the colors necessary for the proper production of any tinted or colored paint job.

Coloring Paint

It is good practice to add the colors in oil to the mixture before you add all of the liquid. However, Dutch Boy soft paste colors in oil are so finely ground that they can be easily incorporated with paint that is ready to brush.

It is always advisable, when following a color formula or matching a particular color, to add and thoroughly mix in small quantities of color at a time. Otherwise it is very easy to put in too much color. While the color strength can be reduced by adding more white paint, this procedure should be avoided if possible as the additional quantity required may be surprisingly large and will result in the tinting of more paint than is actually needed.

Coloring Enamel

It is good practice when tinting enamel paint to first thin a portion of the colors in oil with a small quantity of the enamel. Then add the mixture to the bulk of the enamel and stir in. For dark shades of enamel use japan colors.

Color Formulas

All of the following formulas are based on the use of Dutch Boy colors in oil, which are sold in gallon, quart and ½ pint cans and in ⅛ pint (2 ounce) tubes. The specified quantities of colors in oil are for use with 100 pounds of Dutch Boy white-lead. If a different quantity of white-lead is used, adjust the color amounts accordingly.

The exterior color formulas can be adjusted for use with Dutch Boy Pure White Lead Paint (ready to use) by using one-fourth the quantity of color given to each gallon. For example to tint a gallon of paint to the Light Buff below, use one-fourth of 1 pint or two tubes of raw sienna.

Exterior Colors

Light Buff

1 pt. raw italian sienna

Cream

⅛ pt. raw italian sienna

Light Canary

⅛ pt. C. P. lemon chrome yellow

Medium Yellow

¼ pt. C. P. medium chrome yellow

Light Chocolate

3½ qts. burnt turkey umber
1½ qts. english venetian red

Dusty Pink

⅜ pt. english venetian red
¼ pt. burnt turkey umber

Light Tan

¼ pt. burnt turkey umber

Light Gray

½ pt. raw turkey umber

Warm Gray

1 pt. raw turkey umber

Green Gray

1 pt. raw turkey umber
1 liquid oz. C. P. medium chrome green

Cool Gray

1 liquid oz. lampblack
½ liquid oz. C. P. medium chrome green

Silver Gray

⅛ pt. lampblack

Foliage Green

1 gal. C. P. chromium oxide green

Olive Drab

1 pt. C. P. light chrome green
1 qt. burnt turkey umber

Shutter Blue

1 gal. Dutch Boy Blue
3 pts. raw turkey umber

Medium Tan

½ pt. burnt turkey umber

Medium Gray

¼ pt. lampblack

Blue Green

1 t. C. P. prussian blue
1 pt. C. P. dark chrome green

Interior Colors

Ivory

¼ pt. french ochre
¼ liquid oz. burnt italian sienna

Butter Yellow

⅛ pt. C. P. medium chrome yellow

Medium Tan

½ gal. burnt turkey umber

Putty

¼ pt. burnt turkey umber

Pink

1 liquid oz. C. P. orange chrome yellow
1 liquid oz. indian red

Soft Green

⅛ pt. C. P. chromium oxide green
⅙ pt. raw turkey umber

Aquarium Green

¼ pt. C. P. chromium oxide green

Lilac

⅛ pt. rose lake

Medium Green

¾ pt. C. P. chromium oxide green

Light Blue

½ pt. cobalt blue

Lemon Yellow

⅛ pt. C. P. lemon chrome yellow

Dusty Blue

3 liquid oz. Dutch Boy Blue
3 liquid oz. raw turkey umber
1 liquid oz. lampblack

Dull Rose

3/8 pt. english venetian red
1/4 pt. burnt turkey umber

Artichoke Green

1/4 pt. C. P. dark chrome green
1 1/4 pts. raw turkey umber

Gray Blue

3 liquid oz. lampblack
1 3/4 pts. Dutch Boy Blue

Dull Wine

1 3/4 pts. indian red
3/4 pt. english venetian red

Light Slate Gray

1/8 pt. raw turkey umber
1/8 pt. lampblack

Trim Colors

The following formulas produce dark-colored paints which are often required for the painting of trim, sash, blinds, and the like. These paints contain no white-lead. They are prepared by reducing Dutch Boy colors in oil to painting consistency according to the formulas specified.

These paints are for use as finishing coats only. The regular procedure for exterior painting or repainting should be followed in the case of the undercoats. A satisfactory ground for these dark colored paints may be produced by tinting the white-lead undercoat to a medium shade of the finishing color.

For quick set and good thorough drying, it is suggested that about three ounces of powdered litharge be stirred into each gallon of finishing coat paint. Paints containing litharge should be used within two or three days after preparation.

India Red

Yield: 2 gallons

½ gal. english venetian red
½ gal. indian red
2½ qts. Dutch Boy raw linseed oil
1 qt. outside spar varnish
1 pt. Dutch Boy liquid drier*

Bright Green

Yield: 2⅞ gallons

1 gal. C. P. chrome green light
1¼ gals. Dutch Boy raw linseed oil
2 qts. outside spar varnish
1 pt. Dutch Boy liquid drier*

Medium Green

Yield: 3¼ gallons

1 gal. C. P. chrome green medium
1½ gals. Dutch Boy raw linseed oil
2½ qts. outside spar varnish
1 pt. Dutch Boy liquid drier*

Dark Green

Yield: 2⅞ gallons

1 gal. C. P. chrome green dark
1¼ gals. Dutch Boy raw linseed oil
2 qts. outside spar varnish
1 pt. Dutch Boy liquid drier*

* If boiled linseed oil is used or litharge added, use only half the amount of drier specified.

Circus Red

½ gal. bulletin red
½ gal. indian red
3 qts. Dutch Boy raw linseed oil
1 qt. outside spar varnish
1 pt. Dutch Boy liquid drier*

Chromium Oxide Green

1 gal. C. P. chromium oxide green
2½ qts. Dutch Boy raw linseed oil
1 qt. outside spar varnish
1 pt. Dutch Boy liquid drier*

Seal Brown

3 qts. bulletin red
1½ pts. lampblack
3 qts. Dutch Boy raw linseed oil
1 qt. outside spar varnish
1 pt. Dutch Boy liquid drier*

Dutch Boy Blue

1 gal. Dutch Boy Blue
1 gal. Dutch Boy raw linseed oil

Holly Green

1 gal. C. P. chrome green—dark
2½ qts. Dutch Boy raw linseed oil
1 qt. outside spar varnish
1 pt. Dutch Boy liquid drier*

* If boiled linseed oil is used or litharge added, use only half the amount of drier specified.

CHAPTER VII

Decorative Wall Finishes

WHEN decorative treatments other than plain paint effects are desired, one or more of the treatments described in detail on the following pages may be used. All of these treatments are produced over a ground of flat paint. All are fairly simple to do and require no equipment other than stencil paper, masking tape and the proper brushes.

Use of Masking Tape

Masking tape is invaluable for establishing an

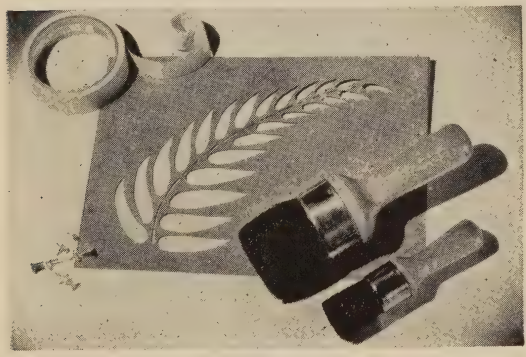


Figure 6—*Equipment for Decorating*

even clean-cut line where more than one color is employed. Other uses for which this tape may be found helpful are in panel work, in striping, in producing an even line where a side wall is divided into horizontal bands and in establishing a dado line.

Use of Stencil

When a decorative note of color is required on walls or ceiling panels or simply in small spots here and there in panels, the stencil offers a ready means of supplying it. It also comes in handy as a quick method of producing a frieze, a panel border where moldings are missing or a border effect at the top of a dado or wainscoting.

Although a stencil can be applied with ease, there are two points which should not be overlooked in connection with its application. First, care should be taken to avoid the use of too thin a paint as a stencil color. The paint should be of paste consistency, thinned slightly with Dutch Boy Lead Mixing Oil. The resulting mixture should be applied with a stencil brush carrying very little paint. Second, care should be taken to compare the stencil color directly with the color over which it is to be applied, since one will affect the other.

Stippling

The texture that results from stippling is one of the most useful methods a painter can employ to provide a uniform surface and lend additional interest to the finishing coat of paint on walls and ceilings. Directions for producing this effect are given on page 60.

Crumpled Roll Finish

To produce this finish, select two harmonious colors, one light and the other dark, or two shades of the same color that differ enough in tone to offer a pleasing contrast.

The ground coat (Formula No. 28c or No. 32c, page 54) is tinted to one of these colors, applied, and allowed to dry. Then the finishing coat is prepared, brushed on a workable section

Figure 7

at a time, and "rolled" as described below while still wet. Prepare the finishing coat according to Formula No. 28c or No. 32c, page 54, and tint it to match the second color selected.

The "rolling" is done with a double sheet of newspaper or other absorbent paper crumpled

tightly into an elongated wad. Newly printed newspapers should not be used because the printing ink may come off the paper and spoil the appearance of the wall.

Starting at the top left hand corner of the freshly painted surface and rolling diagonally downward, turn the roll of crumpled paper over and over with the fingers, pressing it firmly against the wall to keep it from slipping. (See Figure 7.)

Continue the rolling to the bottom of the wall and repeat for the next strip, permitting the end of the roll of paper to just overlap the edge of the previous strip. Care should be taken to apply no larger section of the finishing coat than can be conveniently rolled before it sets up.

All blank or missed spaces should be patted with the crumpled paper, and all blurs touched up and re-rolled while they are still wet.

It must be kept in mind that as only about one-third of the ground coat shows through, the finishing coat is the one which determines the dominant color of the decorative effect.

The crumpled roll finish should not be attempted on rough-finished surfaces, since the high points of the plaster will prevent the paper from reaching the paint in the depressed portions, thus leaving an indistinct pattern.

Sponge Mottle Finish

In the sponge mottle finish the colors chosen for the ground and mottling coats should differ sufficiently to show the desired degree of contrast in the finished effect.

A flat ground, properly tinted, should first be applied and allowed to dry. Prepare this ground according to Formula No. 28c or No. 32c, page 54. The same formula is used also for mottling.

Now cut a coarse fibre sponge in half in order to make a flat surface, soaking one of the halves in water to soften the fibres and then squeezing out the water carefully.

To do the mottling, lightly press the flat side of

Figure 8

the damp sponge into some of the mottling coat paint, previously spread on a board, and then tamp the wall with it here and there. (See Fig. 8 above.) Go over the entire surface in this way, making no attempt to follow a set pattern. Much of the charm of the sponge mottle finish is lost if the

sponge markings are placed in straight lines and at fixed intervals.

More than one mottling color may, of course, be employed. Use a separate sponge for each color.

A beautiful and changeable effect may be secured by using a semi-gloss finish (Formula No. 30c or 33c, page 54) over a flat ground coat. By tinting both the ground and the mottling coats to the same color an effect of tracery may be obtained due to changes in the angle of reflected light.

Bubble Effect

This is a stencil finish. The bubble effect is produced by stippling through circular openings which

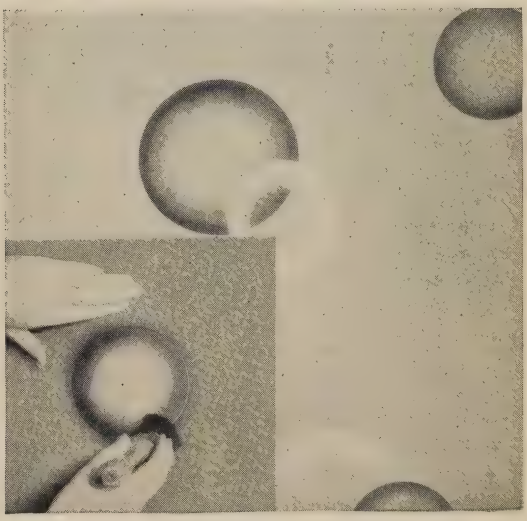


Figure 9

have been cut in a piece of stencil paper. These circles should be of unequal size. The stencil is applied over a previously painted and dry surface by stippling around the outer edge of the circular opening and gradually blending the paint from the outer edge toward the center. (See Figure 9.) This type of treatment is appropriate for use in nurseries as well as in tea rooms, night clubs, breakfast rooms, etc.

Mask Treatment

A new adaptation of the stencil is the mask treatment which makes it possible to obtain any width border desired without cutting a new pattern. It varies from the conventional stencil in that the design is cut in one edge of the stencil paper. Figure 10 shows a very simple mask design.

Figure 10

After the width of the border design is decided upon, the stencil paper is held against the wall or fastened with masking tape and the space above the mask is then filled in with the desired color. If a more elaborate effect is desired, a second color may be used to outline the edge of the design. This effect is particularly appropriate for use in halls but is adaptable to nearly every type of room.

Leaf Stencil

This simple stencil is very versatile in its application. It can readily be used in at least one of its various adaptations, for almost any room in the average home. It may be used as a running border at the top of the wall (see Figure 11), in which the stencil is reversed for alternate repeats, or as an all-over spot stencil for an entire wall, or for a

Figure 11

recessed portion or niche. If a border design is desired at the top of a dado, the stencil may be placed at various angles and carried out in three shades of one color—giving the effect of shrubbery.

Another interesting border treatment is to place

the stencil almost vertically, but tipped slightly to the left, and then reversing the stencil and placing it so that it crosses at the middle of the design already applied. All leaves running in one direction may be carried out in a deeper shade of the wall color, while those running in the opposite direction may be painted in white or a lighter tint of the wall color.

Snowflake Stencil Treatment

Almost any pale tint may be used as the ground coat or wall color over which this finish is to be produced. A light blue suggestive of the sky gives the most realistic effect. White and a deeper shade of the wall color may be used for the stencil patterns.

When the ground coat has thoroughly dried, the stencil colors are stippled through the openings of the various patterns. If two colors are used for one

Figure 12

individual pattern, care should be taken to blend them carefully.

The snowflake effect may be applied as an irregular border design at the top of a wall to pro-

duce the effect of falling flakes, or several of the stencils may be used as an all-over spot pattern (see Figure 12) on one or all four walls of a room.

For night clubs, restaurants or game rooms, a particularly effective treatment is a deep blue for walls with solid white or spattered white stencils. The stencils may be increased in size for rooms of this type.

Striping

Where a simple method of treatment is required to lend a distinctive air to an interior which has been painted in a plain one-tone effect, striping may be used with good results. Striping consists simply of applying narrow banding lines of color on a surface. These may be in any desired width and preferably in some harmonizing color.

The striping line or lines should be applied directly on the side wall, a few inches out from the wood trim, the distance depending on the width of the stripe, which is, in turn, determined by the size of the room. The usual distance from the baseboard is about one to three inches for a three-quarter inch stripe.

Striping is also employed to mark the outline of the stones in imitation stone effects.

The use of masking tape as described in the first part of this chapter will be found a convenient aid in striping.

Paneled Effects with Paint

Large interior surfaces are sometimes found that would appear far more interesting if paneled than if left in large unbroken areas.

Striping or stenciling with paint to produce panels offers a simple solution of the problem. In laying off the side wall in panels make sure the panels are interesting in shape. The border or stile for the average room should be about six or eight inches in width. When panels have been outlined and the panel treatment carried out, a solid striping line of color or a stencil border should be applied to frame each panel properly.

Frisket Stipple

This effect is obtained over a smooth surface after a ground coat has been properly applied and is dry.

Figure 13

The only tools needed to carry out this wall finish consist of a sheet of paper which can be cut into a frisket or stencil, a four-inch wall brush, a wall

stippler and a few yards of masking tape.

A suitable design should then be selected and traced upon the paper. An outline of trees is illustrated in Figure 13. Distant views or easily silhouetted figures will be found to be the best subjects. The length of the stencil is determined by the amount of variety the decorator desires in his subject; its depth by the size of the room to be decorated. It is important that the design should run off the two edges of the sheet on the same level so that when the stencil is removed and the design repeated, there will be no gaps or obvious joints. The design is then cut out. The lower part of the design is the portion which is attached to the wall to produce the frisket design shown in Figure 13.

The ground color will be determined by the design that is selected. For example, pale blue for a sky line; for a desert, light buff. The frisket is attached to the wall below the ceiling line, using masking tape to hold it securely in place. The distance from the ceiling line is determined by the size and character of the design and to some extent by the size of the room. Twelve to eighteen inches is a normal distance. The same paint used for the ground coat is lightened, by adding white paint, for use on the area above the frisket. After the paint has been applied over the frisket, it should be blended toward the ceiling line by stippling. When one stretch is completed, the frisket stencil is placed on the next stretch and the process repeated. Freehand alterations may be made in the outline by inserting birds, altering the height or shape of trees,

etc., in order to increase the interest and provide an effective variation in the pattern.

Glazed or Antique Finish

As a method of finishing the plain one-tone wall, adding interest to moldings and wood trim, or for softening colors, this finish is most effective and gives a rich depth of tone.

The effect is obtained by first preparing a thin semi-transparent glaze composed of Dutch Boy flatting oil to which sufficient tinting material has been added to produce the depth of tone required. Apply this glaze over the dry finishing coat and then, while the glaze is still wet, wipe the surface lightly with a ball of clean cheesecloth. This operation will remove a certain amount of the glaze, permitting enough to remain on the surface to give an antique effect. (See page 48.)

Tiffany Finish

Over a light cream colored ground, which has been based on Formula No. 28c or No. 32c, page 54, and which has thoroughly dried, is brushed a coat of straight Dutch Boy flatting oil, taking care to cover no larger area than can be conveniently worked—about twenty-five square feet.

While the flatting oil is still wet, the glazing colors should be applied here and there. (See Fig. 14.) Some colors in oil are better adapted to glazing work than others. The siennas and umbers, both raw and burnt, lampblack, rose lake, cobalt blue and chinese blue are the most frequently used glazing colors. The latter two should be used very

sparingly since they exhibit a tendency to "strike in" and a spotty effect may result.

The colors should be blended one into another with a wad of cheesecloth, using either a circular or a "figure 8" motion. High lights should then

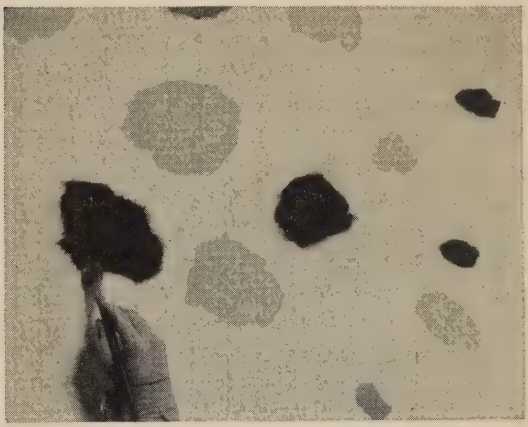


Figure 14

be wiped out here and there to permit the ground color to show through and the work finished by tamping with a ball of cheesecloth.

The method as outlined above applies to smooth finish plaster. For equally interesting effects on rough finish plaster, blend the glazing colors by tamping with a stippling brush.

Striped Wall Treatment

The striped wall treatment is an up-to-date decorative effect which goes well in any interior

stressing the modern note. It consists of a series of horizontal "steps" or stripes. The stripe at the ceiling may be a light shade of any desired color. Each successively lower stripe will then be a slightly darker shade of the same color with the darkest shade at the floor line.

To produce this effect in the interior of average height, the wall should be first lined off into five horizontal stripes of equal width. Using masking tape to insure even dividing lines, the top, middle and bottom stripes should then be filled in with their respective colors. When these have dried thoroughly, the remaining two stripes may be coated in, using masking tape as before to insure an even edge.

After the entire surface has dried thoroughly, a narrow stripe of a darker color may be applied as a dividing line between the stripes if an additional note of interest is desired.

Paint Blend

When the surface on which this finish is to be applied is ready for the final coat, a coat of paint based on Formula No. 28c or No. 32c, page 54, should be prepared. This is divided into three batches—a main batch for painting the entire wall and two smaller batches for blending purposes. The main batch is tinted to the desired ground coat color and the smaller batches to colors that will harmonize with the ground. The larger batch of paint is applied over a workable portion of the surface, and while it is still wet, individual brushes are used to apply the other colors in well-assorted groups here and there over the wet ground. While the paint is

still wet these irregular spots should be smoothly blended by stippling.

The principal advantage of this finish is the fact that the painting and the blending can be accomplished at the one time instead of having to wait until the ground coat is dry before blending.

White-lead and Oil Plastic Paint

There are any number of interesting and varied textures which may be produced with white-lead and oil plastic paint. Only two of the simpler ones are described and illustrated in the paragraphs that follow. Complete directions for the mixing and application of plastic paint will be found on page 64.

All plastic paint textures are accentuated by glazing. The glazing is done after the paint has been textured and is thoroughly dry. The glaze is composed of Dutch Boy flatting oil to which sufficient tinting material has been added to produce the tone desired. This is applied over the surface and then wiped off with a ball of cheesecloth. A small amount remains in the depressed portions of the surface to emphasize the plastic design.

Vein Relief

To produce this effect, simply strike the wet plastic paint sharply all over with the flat side of a four-inch wall brush.

Fretted Texture

Just tamping the wet plastic paint uniformly with a coarse fibre sponge produces the fretted texture.

Figure 15—*Vein Relief*

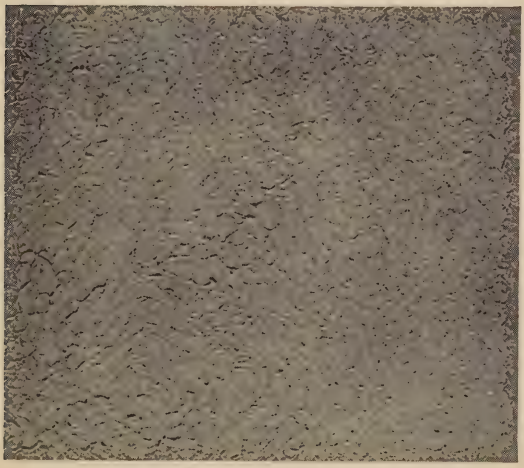


Figure 16—*Fretted Texture*

FORMULAS FOR METAL PAINTING

New Metal (Dark Finish)

Materials	Priming Coat Formula No. 36c	Second Coat Formula No. 37c	Black Finish Coat Formula No. 38c
Dutch Boy paste red-lead	100 lbs.	100 lbs.	25 lbs.
Dutch Boy linseed oil†	1⅞ gals.	1⅞ gals.	2¼ gals.
Dutch Boy lampblack	.....	¾ pint	1⅞ gals.
Dutch Boy C.P. prussian blue	.....	.....	½ gal.
Pure turpentine	1½ pints	1½ pints	3 pints
Dutch Boy liquid drier	1½ pints	1½ pints	3 pints
Gallons of paint produced	4½	4⅝	6
Sq. ft. covered per gal., 1 coat	600	600	700

New Metal (Light Finish)

Materials	Priming Coat	Second Coat Formula No. 39c	Finish Coat Formula No. 40c
Dutch Boy white-lead*	Use	100 lbs.	100 lbs.
Dutch Boy linseed oil†	Formula	1½ gals.	3¼ gals.
Pure turpentine		1½ gals.	.....
Dutch Boy liquid drier	No. 36c	1 pint	1 pint
Gallons of paint produced		6⅜	6⅝
Sq. ft. covered per gal., 1 coat	600	700	700

Water Tank Interiors

Materials	Priming Coat Formula No. 41c	Second Coat Formula No. 42c	Finish Coat Formula No. 43c
Dutch Boy paste red-lead	100 lbs.	100 lbs	100 lbs.
Dry powdered litharge	8 lbs.	8 lbs.	10 lbs.
Dutch Boy linseed oil†	1½ gals.	1½ gals.	1½ gals.
Pure turpentine	¾ gal.	¾ gal.	1 quart
Dutch Boy lampblack	.....	½ pint	1 pint
Dutch Boy liquid drier	1 pint	1 pint	1 pint
Sq. ft. per gal., 1 coat	4⅝	4⅝	4⅞
Gallons of paint produced	600	600	600

* This formula is based on the use of soft paste white-lead. If heavy paste is used add 1 quart of turpentine to the formula.

† If boiled linseed oil is used, omit drier in all formulas except No. 38c in which the drier should be reduced by 1 pint.

CHAPTER VIII
Metal Painting

IN ALL kinds of tests, under every conceivable condition, red-lead has stood up better than any other paint for protecting metal surfaces. Railroads use it generally for the protection of cars, bridges and other structures. It is used on ships the world over. It protects gas holders, oil tanks and the steel in modern buildings.

Nearly every house has eave-troughs, valleys, gutters or down-spouts that should receive red-lead protection. Farm machinery, metal roofs, pipes, water tanks, troughs, fences, etc. can be made to last long through the timely use of red-lead. In fact, every piece of tin, iron and steel about the premises should be red-leaded if it is to last.

Preparation of Surface

Thorough cleaning of the surface to remove rust, scale, grease and dirt is essential in metal painting. Foreign matter not only impairs the adherence of the paint film but also encourages corrosion. Various cleaning methods are available. These include the use of wire brushes, scrapers or chipping hammers, sand or shot blasting, flame

cleaning and, for small metal objects, pickling. The choice of method depends on considerations of cost, practicability and relative efficiency.

Number of Coats

At least three coats of paint are necessary on all outside metal work that has not been painted previously or from which all paint has been removed. It is recommended that the first two coats be red-lead paint, followed by whatever paint may be necessary to produce the finish desired.

Two coats will often do for metal surfaces not exposed to weather but in no case will one coat of paint effectively protect bare metal. To the naked eye, the metal may appear to be covered but there are bound to be minute holes in the film which will allow moisture to enter and attack the metal beneath.

Two coats are sufficient for repainting work where the old paint is in sound condition. If there are any places where the old paint is removed these should be spot painted with an extra coat.

Mixing the Paint

Dutch Boy red-lead in oil is very easily made into paint. Put the required amount of paste into a mixing container and stir in the necessary amount of linseed oil slowly. After all the oil has been completely incorporated, add the turpentine and drier and thoroughly mix.

Dry red-lead is also easily made into paint. A suggested formula and directions for mixing are as follows: Into one gallon of linseed oil, slowly mix

75 pounds of dry red-lead. Allow the resulting paste to stand (sweat) for seventy-two hours to insure complete wetting of the red-lead particles. Then add one gallon of linseed oil and stir thoroughly. A few hours before application, add one gallon of a mixture consisting of two-thirds thinner and one-third drier. Pour the paint back and forth from one container to another and strain. The total yield is about 4 gallons.

Applying the Paint

Be sure the surface is dry before applying red-lead paint. Avoid painting during freezing weather.

Red-lead paint can be applied by brushing, spraying or dipping. For brush application a round or oval brush works effectively. Brush the paint out well but do not attempt to make a gallon go too far. See that the surface is completely covered. Pay particular attention to bolts, rivet heads, edges and corners. Rivet heads are sometimes given an extra coat of red-lead paint.

Allow plenty of time between coats for the previous coat to dry thoroughly. A week is not too long in the case of red-lead linseed oil paints, especially for the priming coat.

Area Red-Lead Paint Will Cover

The area which any paint may be expected to cover is approximate at best as the spreading capacity of a paint is greatly influenced by such variable factors as temperature, consistency of the paint and the condition of the surface being

painted. With Dutch Boy red-lead, however, 600 square feet per gallon is a conservative figure and under all except the most unfavorable conditions it may be expected to cover more than this.

Painting Exterior Metal

The red-lead user may either mix up his own paint, using dry red-lead or red-lead in oil, or he may prefer to use Dutch Boy Liquid Red-Lead paints. The latter are available in the following mixtures: No. 1—orange-red, No. 5—black, No. 6—light brown and No. 7—dark brown. No. 1 is a priming coat paint, conforming substantially to Formula No. 36c, and may be used wherever this formula is specified. No. 6 and No. 7 are the same paint tinted with varying amounts of lampblack for use as a second coat, the choice between the two depending on the color selected for the top coat. They conform closely to Formula No. 37c and may be used wherever this formula is specified. No. 5 is a black finishing coat paint.

Also available in ready to use form is Dutch Boy Quick-Drying Red-Lead. This is a pure red-lead paint with an alkyd resin-type vehicle which causes it to dry for recoating in from two to six hours. It may be either brushed or sprayed and is suitable for surfaces subject either to atmospheric or underwater exposure.

Paint mixed according to Formula No. 36c should be applied as the priming coat on all new work or on surfaces and spots from which all paint has been removed. Dutch Boy Liquid Red-

Lead No. 1 or Dutch Boy Quick-Drying Red-Lead may also be used.

The choice of second coat depends on the color desired for the finish coat. If it is to be dark in color, apply a second coat based on Formula No. 37c, or use either Dutch Boy Quick-Drying Red-Lead (to which has been added a little lampblack in oil) or Dutch Boy Liquid Red-Lead No. 6 or No. 7. If the finish coat is to be light in color the second coat should be based on Formula No. 39c which is a white-lead paint.

The finish coat, if black is desired, should be mixed according to Formula No. 38c or use Dutch Boy Liquid Red-Lead No. 5. If some other color is preferred, use Formula No. 40c tinted to the shade desired. Colors like Silver Gray, Medium Gray and Foliage Green (see page 70) are particularly pleasing for exterior metal structures. The colored paints listed on pages 73 and 74 may also be used for the finish coat on metal surfaces.

Work previously painted should receive a coat of one of the red-lead priming coat paints (for dark finish) or No. 39c (for light finish). This should be followed by a finish coat selected according to the above procedure.

Painting Water Tank Interiors

The interior of an industrial water storage tank should receive at least three coats of paint.

Dutch Boy Quick-Drying Red-Lead is highly recommended for this purpose particularly when the available drying time is short. Not only is it resistant to the softening action of water but it

dries for recoating in from two to six hours. It should be used for all three coats.

Serviceable red-lead linseed oil paints for water tank interiors may be prepared according to the formulas given on page 92, Formula No. 41c being used for the priming coat, Formula No. 42c for the second coat, and Formula No. 43c for the finish coat.

The dry litharge called for in each formula should be made into a paste with turpentine. In the case of Formulas No. 41c and 42c the quantity of turpentine called for will be more than sufficient for this purpose. In Formula No. 43c, however, it will be necessary to use some of the linseed oil for mixing with the dry litharge. In each coat the litharge is mixed with thinner and added to the paint just prior to application. A half pint of lampblack in oil may be added to Formula No. 42c and a pint to Formula No. 43c to facilitate inspection.

Allow sufficient time between coats for the paint to dry thoroughly. The last coat on the inside should be allowed to dry at least one week under favorable conditions; or better, two weeks before filling the tank.

All the paint should be brushed out thin. Under no circumstances should it be flowed on.

It is always wise to empty the tank once a year and carefully examine it. If any small rust spots are found, they should be attended to.

Painting Galvanized Iron

No paint can be recommended to stand up

satisfactorily on new galvanized iron at all times because the surface left by the galvanizing process is not an ideal one for paint.

It has been the experience of practical painters that paint made of pure red-lead and linseed oil gives good results most consistently. The best results are obtained by allowing the galvanized iron to remain exposed to the weather at least six months before painting. If time is not available for weathering, the surface should be washed with mineral spirits (benzine) prior to painting to remove grease and oil.

The procedure for painting is the same as that previously described under Painting Exterior Metal on page 96.

When the paint is applied by brush, do not merely spread the priming coat upon the metal and expect it and succeeding coats to stick at all hazards. Brush the paint out well and use enough pressure to force it into every microscopic irregularity in the surface.

Painting Interior Metal

Interior metal such as ceilings, trim and sash which have not been painted previously should receive three coats of paint. For the priming coat, use Formula No. 36c, Dutch Boy Liquid Red-Lead No. 1 or Dutch Boy Quick-Drying Red-Lead. For the second coat use Formula No. 33c (page 54). If the finish is to be colored, use some of the same color to partially tint this second coat. The third coat should be mixed according to the type of finish desired. For a semi-gloss

finish use another coat of Formula No. 33c. For a flat finish use Formula No. 28c (page 54), employing the smaller quantity of vehicle called for.

It is always good practice to have at least one coat of red-lead on previously unpainted iron or steel. However, on interior metal, where moisture conditions are less severe, white-lead paint may be applied directly to the metal surface. In fact, this practice is advantageous where white or a very light finish is desired. For priming with white-lead, use a paint made by thinning 100 pounds of white-lead with 2 gallons of linseed oil, ¾ gallon of turpentine and 1 pint of liquid drier. The second and finishing coats should follow the recommendations in the preceding paragraph.

Painting Radiators

The directions for painting interior metal in the preceding section apply also to pipes and radiators.

Unpainted pipes and radiators should first be cleaned thoroughly to remove all traces of rust, dirt and grease. In the case of pipes and radiators that have been painted before and that show some defect such as blistering or peeling, the old finish should be removed and three coats of paint applied. If the old finish shows no defects, the priming coat may be omitted.

Radiators treated previously with aluminum or bronze should be repainted in the same manner since any attempt to refinish them with other paints may result in scaling.

Ample time should be permitted to elapse between coats so that each may dry and harden

thoroughly before the next is applied. If it is possible to permit the steam to pass gradually through the pipes between coats, the drying may be hastened in this way. However, the steam should not be turned on full. If the pipes are submitted to sudden heating, the coating will undoubtedly be affected.

It should also be kept in mind that nearly all light tints show a tendency to darken slightly due to heat. This should be taken into consideration when the color is selected.

Dipping Paint

Small metal units such as gratings, window frames, reinforcing rods and the like can be red-lead primed by dipping them into the paint. A dipping paint must be formulated so that it will not run or sag and still give uniform coverage. The following is a formula for a linseed oil type dipping paint: 100 lbs. Dutch Boy red-lead, ¼ gal. raw linseed oil, 1 gal. boiled linseed oil, 1 to 1½ gals. petroleum spirits or turpentine, ¼ gal. Dutch Boy liquid drier. The quantity of volatile liquid may be adjusted within the above limits depending upon the kind of object being dipped and the dipping equipment being used.

FORMULAS
FOR
BOAT PAINTING

Exterior Wood Surfaces

Materials	Priming Coat **Formula No. 44c**	Second Coat **Formula No. 45c**
Dutch Boy white-lead	100 lbs.	100 lbs.
Dutch Boy linseed oil	4 gals.	1¼ gals.
Pure turpentine	2 gals.	1 gal.
Dutch Boy liquid drier	1 pint	1 pint
Gallons of paint produced	9⅜	5⅝
Sq. ft. covered per gal., 1 coat	600	700

●

FINISH COATS

Materials	*(Flat)* **Formula No. 46c**	*or* **Formula No. 47c**	*(Gloss)* **Formula No. 48c**
Dutch Boy white-lead	100 lbs.	100 lbs.	100 lbs.
Dutch Boy linseed oil	.....	.....	3¼ gals.
Dutch Boy Lead Mixing Oil	3 gals.	.....	.....
Pure turpentine	.....	1¾ gals.	.....
Spar varnish	.....	½ gal.	.....
Dutch Boy liquid drier	.....	½ pint	1 pint
Gallons of paint produced	6¼	5½	6⅝
Sq. ft. covered per gal., 1 coat	700	700	700

●

HEAVY PASTE

The formulas on this page are based on the use of soft paste white-lead. If heavy paste is used add 1 quart of turpentine to all formulas except No. 46c.

BOILED LINSEED OIL

If boiled linseed oil is used omit drier called for in formulas.

●

CHAPTER IX

Painting Small Boats

UNDER this classification, so far as painting practice is concerned, we may include everything from a canoe to a sizable yacht. The pride with which the average boat owner keeps his craft bright and shining—no matter what its size or shape—is traditional. Paint, of course, is the natural medium for this decorative urge just as it is for protective purposes. This chapter is devoted therefore to directions and proper formulas for painting the various types of craft coming under the head of small boats.

It should not be assumed from this that white-lead and red-lead as well as other Dutch Boy products are used for nothing larger than yachts. On the contrary, the same products used for painting small boats have long been used for protecting and decorating the biggest liners and steamships. The painting of ships of this size, however, is more or less a specialized field and it is felt that a detailed discussion would be out of place in this handbook. In general, it may be said that the same procedure and the same formulas recommended in this chapter for smaller boats also apply to larger craft. Of course, the decoration of the interior of any boat or

ship is no different from the decoration of other interior surfaces. This subject is quite completely handled in previous chapters.

Preparing the Surface

If the surface is of new wood, dust it off carefully and cover all knots and sappy streaks with orange shellac. The shellac can be made by thinning dry orange gum shellac with good quality denatured alcohol, proportioned on the basis of three pounds of shellac to one gallon of alcohol, or the liquid shellac may be purchased as "3 pound cut pure orange shellac". Brush the shellac on thin. If it is put on too thick the paint will alligator, leaving the knots bare.

Painting the Hull

Prime the new wood with a thin coat of paint mixed according to Formula No. 44c.

After the priming coat has dried thoroughly, fill all cracks, nail holes, dents and other defects in the surface carefully with putty. It should consist of Dutch Boy white-lead, either soft or heavy paste, stiffened to putty consistency with dry whiting. (See directions on page 25.) An even harder putty is made with Dutch Boy red-lead instead of white-lead.

Use sandpaper to smooth down the rough places. Then apply a second coat of paint, mixed according to Formula No. 45c.

Repeat the second coat as many times as desired. Many boatmen put on five or six coats brushed out very thin. Without question this is the best practice, as a number of thin coats produces much bet-

ter results than the same amount of paint put on in thick coats.

Finish with a coat of paint mixed according to Formula No. 46c or No. 47c.

Both formulas give a "flat" or glossless finishing coat paint, which wears much better under water than a glossy paint rich in oil.

Painting Deck, Spars and Outside of Cabin

Use the same formulas for the priming and second coats on the deck, spars and outside of the cabin as for painting the hull. Then apply the finishing coat, Formula No. 48c, except on decks. Use Formula No. 12c, page 15, for decks, employing a good outside spar varnish in place of the floor varnish. Be sure to allow plenty of time between coats. Forty-eight hours should be the minimum.

Painting Metal Surfaces

Iron and steel hulls, keels, masts or other rustable metal surfaces of vessels should be protected with two coats of Dutch Boy red-lead. The painter may use either Quick-Drying Red-Lead for this purpose or if he wishes to mix his own paint, Dutch Boy paste red-lead. In either case, the metal must be cleaned of all rust and loose dirt and otherwise prepared to receive paint.

For painting procedure follow the directions in the previous chapter on Metal Painting. An antifouling paint may be used as a finish coat below the water-line, if desired.

Repainting

In repainting, use the same formulas given for

painting new work, except that the priming or first coat may be omitted. Old coats should be smoothed down well and the surface should be thoroughly dry before new coats are applied.

Remember that paint will not adhere properly to a boat's bottom that is covered with dirt, water plants, marine animals, etc. Clean off all such accumulations by scraping or scrubbing.

Stop up all leaks before applying any paint. Cracks and seams can be filled up with caulking cotton soaked in paste white-lead, nail holes with bits of pine, and very small leaks with white-lead putty.

Paint applied over an uneven surface is bound to present a bad appearance. Where the old paint is rough, sandpaper it down smooth and touch up all bare spots before applying the first coat.

Row Boats

Do not attempt to paint immediately after taking the boat from the water. Let it dry thoroughly. Then apply two coats of paint, inside and outside, mixed according to Formula No. 47c.

If a colored paint is wanted, tint the last coat. The addition of a very little lampblack or drop-black will produce a gray. A little chinese blue will make a light blue. (For other colors, see Chapter VI).

Applying two coats of paint mixed according to Formula No. 47c will produce a "flat" or lustreless finish. If a semi-gloss finish is desired, add an additional pint of spar varnish to Formula No. 47c.

Canvas Canoes

When the paint is so badly cracked and broken that the canvas shows through in places, it is best to remove the old coat entirely by means of a paint remover and start anew. After the old paint is off, sandpaper the surface and apply a coat of paint mixed on the basis of 4 lbs. soft paste white-lead, ¾ pint of turpentine, ½ pint of spar varnish and a little liquid drier.

The above formula should make enough paint for the first coat on one canoe. Put the paint on thick and work it well into the canvas by careful brushing. When dry, sandpaper the surface and then apply two coats of japan color thinned with spar varnish and just enough turpentine to make the paint brush out smooth. One pint of japan color and one pint of varnish should be sufficient to do the work.

If the old paint on a canoe is in good condition, the white-lead paint need not be applied. Simply sandpaper the old coat down smooth and apply the two coats of japan color and varnish.

To refinish the inside of a canoe, sandpaper the old varnish thoroughly and put on one coat of good spar varnish. One pint of varnish should be sufficient.

Patching

To mend a hole in a canoe, insert a piece of canvas beneath the torn part, pasting the patch on with a little white-lead and rubbing varnish, and clinching it to the ribs of the canoe with brass or copper tacks. Very small holes can be fixed by plugging them with white-lead stiffened with whiting.

CHAPTER X

Common Painting Defects Their Cause and Cure

GOOD paint doesn't fail prematurely unless it is improperly mixed, carelessly applied or asked to do the impossible. Pure white-lead paint, properly mixed and skillfully applied to a surface fit to receive it and exposed to ordinary atmospheric conditions, always does what it is advertised to do—last long, look well during its entire life and wear away gradually, leaving a perfect surface for repainting.

Assuming that the paint you applied conformed to these requirements of proper mixing, brushing and exposure, yet developed certain localized defects after the job had stood for some time, the chances are that some defect in the construction of the building was the cause of the failure.

It has been proved that if moisture is allowed to get behind the paint film because of some defect in the construction of a building, it will do the same kind of damage it causes if paint is applied directly over it. Everyone knows that surfaces should be dry when painted, but if the timber is allowed to become water-soaked from the inside after it is painted, a paint failure will be brought about.

Some of the causes of paint failure, not usually considered as such, are listed here:

Poor fitting of siding material over drip caps on window and door headers.

Poor fitting of siding against casings of doors, windows and corner boards.

Insufficient or incorrect placing of metal flashing where porch or dormers fit into house.

Building a porch skirting down to the ground level with wood touching the moist ground.

Building all or part of house over unconcreted ground which becomes especially fruitful as a cause for trouble when insufficient or no ventilation is provided to carry off vapors rising from open ground.

To cure the paint troubles brought about by any of the above causes, it will be necessary to correct the defect in construction which leads to the paint failure. The paint which is cracking, peeling, scaling, etc., must be removed clear down to the bare wood, the wood allowed to dry out thoroughly and the building defect corrected. After this, the surface may be painted to stay painted.

Another common cause of paint failure is painting too soon after siding and trim have been exposed to rain. Some painters make the mistake of figuring that a few hours of rainless weather are enough to thoroughly dry out lumber which has been saturated as the result of a heavy rain. Actually, at least three or four days of clear, dry weather should elapse before painting.

If it is certain that there exist no constructional

defects like those outlined above, then any trouble that develops must be attributed either to wrong materials or improper painting practice. The remainder of this chapter is devoted to a description of some of the paint failures that crop up from time to time and what you can do to avoid or correct them.

Checking

(Figure 17)

This defect takes the form of fine splits or ruptures in the paint which break the surface into innumerable small irregular areas but which are in the top coats only and do not extend through to the surface underneath. Slight checking is not a serious defect because the durability and the protective value of the paint are not affected, nor does checking make repainting more difficult.

The cause of checking is usually too soft an undercoat. It can be avoided by allowing plenty of drying time between paint coats and by making sure that each undercoat is properly formulated to insure its being harder than the succeeding coat.

Alligatoring

(Figure 18)

This defect is similar to checking in character although the ruptures in the paint film are much wider and the surface broken into larger irregular areas. Like checking, it affects the top coats only and does not extend through to the surface underneath.

Alligatoring, however, gives the surface an un-

Figure 17—*Checking*

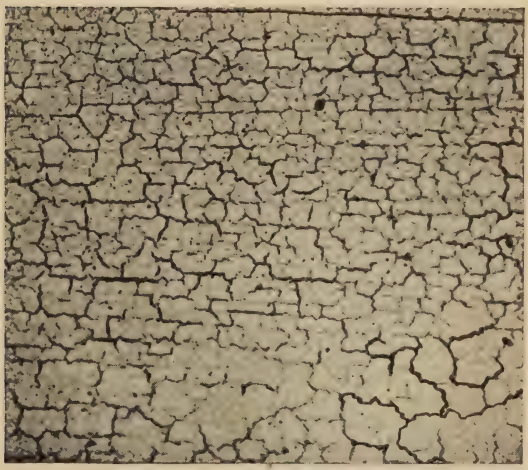


Figure 18—*Alligatoring*

Figure 19—*Cracking and Scaling*

Figure 20—*Blistering and Peeling*

Figure 21—*Spotting*

Figure 22—*Washing*

Figure 23—*Wrinkling*

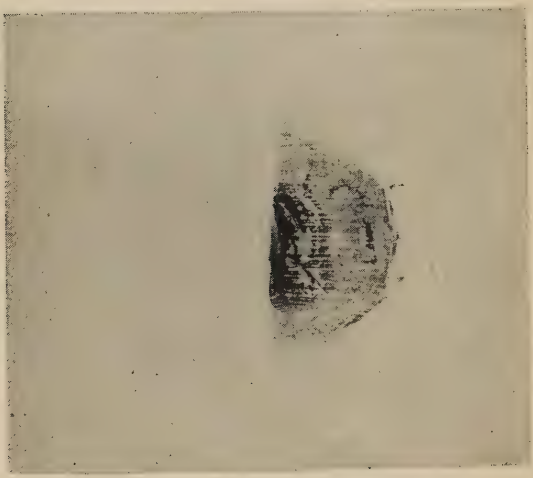


Figure 24—*Bleeding Over Knot*

Figure 25—*Discoloration Over Cedar or Redwood*

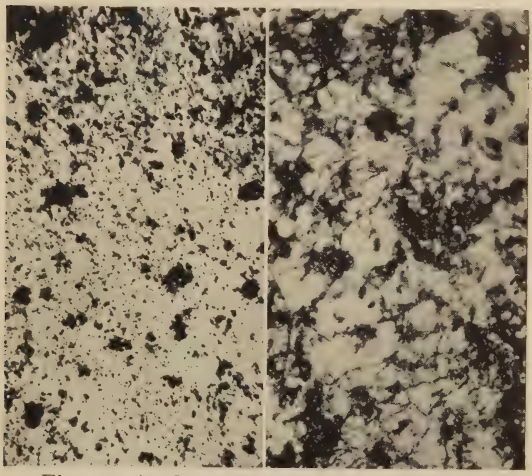


Figure 26—*Dirt Discoloration (left) and Mildew (right). Greatly Magnified*

Figure 27—*Sagging*

Figure 28—*Running*

sightly appearance. It seriously affects the durability of the paint and makes repainting difficult. The cause of alligatoring is always too soft an undercoat. This may be due either to the use of too much oil, to insufficient drying time between coats or to the use of impure oil or other vehicles which dry to a soft film.

To avoid alligatoring, make sure that the undercoats have plenty of time in which to dry and that they are properly formulated to insure their being harder than the succeeding coats.

Quite often, alligatoring on outside wood surfaces has been traced to the use of yellow ochre as a priming coat. While the use of this type of primer has been long discontinued, some old houses still retain their priming coat of this material and still cause trouble. The only safe remedy in cases of this kind is the complete removal of the paint, including the ochre, by means of torch and scraper, and then repainting with three coats of white-lead mixed in accordance with our regular formulas.

Cracking and Scaling

(Figure 19)

These two defects are closely related since scaling is a later stage of cracking. Cracking is a rupture of the paint film extending clear down to the wood. This allows moisture to enter behind the paint film which loosens the paint and scaling results. This defect is caused by the use of a paint which becomes hard and brittle as it ages and can no longer follow the movement of the wood surface underneath. White-lead paint remains elastic.

If cracking and scaling have occurred over the entire surface it is usually advisable to remove all of the old paint by means of torch and scraper before repainting. Otherwise, the old film will probably continue to scale, carrying the new paint with it. Our regular formulas should be followed for the repainting.

Blistering and Peeling
(Figure 20)

The most common cause of blistering is moisture present in the material behind the paint film. Peeling quite naturally follows blistering, in most cases, since the paint which has blistered no longer grips the surface properly and a comparatively small amount of pressure is sufficient to force it completely from the surface.

In some cases, the heat of the sun is enough to increase the vapor pressure of the moisture in the material so that it will cause blistering. In interiors, it is usually the heat of a radiator or a riser which causes the trouble. The more moisture tight a paint is, the more apt it is to blister. Therefore a paint that permits some escape of the moisture behind it, and that grips the surface properly, is less likely to show this trouble.

The best way to avoid blistering is to make sure that the surface to be painted is thoroughly dry. In the case of porch columns which are painted on all sides, it is necessary to be particularly careful because if the moisture is in the column when it is painted, blistering is apt to occur even when pure white-lead paint, which possesses unusual tenacity,

is used for the painting. Sometimes, one-half inch holes are drilled at the top and bottom of porch columns to allow ventilation within the column and thus dry out the moisture which may be present.

On repainting a blistered surface, it is necessary to scrape off all the defective paint, allow the wood to dry out thoroughly and repaint as on new work. The priming coat on such work should be permitted to dry for a considerable time and it will be found that this, if properly designed, will permit the wood to dry out further, and yet will tend to prevent the entrance of moisture from the outside. If leaks or faults in construction are responsible for the presence of moisture, these should of course be properly repaired before anything else is done.

Spotting
(Figure 21)

Spotting is characterized by loss of gloss, fading and early chalking in spots or small areas due to absorption of oil from the finishing coat by the porous surface underneath. It is very likely to occur on new work that is only given two coats or old work painted with one coat. Spotting usually shows up more prominently with dark tints and colors. This defect will not occur when sufficient coats of properly formulated paint are applied.

Washing
(Figure 22)

This condition occurs when a paint film contains pigments that are soluble in water or when soluble compounds are formed by chemical reactions after

the paint has been applied. Washing may be noticed in the form of streaks near the lower edge of clapboards and in accumulations on column footings or building foundations. The material that is dissolved out of the paint will collect in these places and when the water evaporates the streaks can be plainly seen.

White-lead never develops water soluble compounds and surfaces painted with properly mixed white-lead paint will never give this trouble.

Wrinkling
(Figure 23)

The principal cause of this defect is an excessively thick coat of paint, sometimes exaggerated by excessive drier. When paint is left in too thick a film it is impossible for it to dry uniformly and after the surface skin has formed the later drying of the part underneath causes the surface to wrinkle. There are sometimes contributing factors such as changes in temperature or excessive humidity during the drying period, but even under unfavorable drying conditions, wrinkling can be avoided if the coat being applied is brushed out to a thin even film. The use of some turpentine helps to retard the wrinkling of paint.

It is not customary to remove the old paint when wrinkling has occurred, although in some cases this is the easiest way of producing a first-class repaint job. If the wrinkling has occurred only on limited portions, rub down the ridges with a fairly coarse sandpaper before repainting.

Bleeding Over Knots
(Figure 24)

Bleeding of this type is caused by the oil in the paint dissolving out substances in the knot and can usually be prevented by coating knots with thin rosin-free shellac after the priming coat of paint has been applied. One half the knot in the photo has been so treated.

Discoloration Over Cedar or Redwood
(Figure 25)

On these woods dark spots sometimes appear through the paint film. This is caused by water soluble substances in the wood which are brought to the surface by moisture and deposited there. This trouble, usually confined to exteriors, can be prevented by making sure the lumber is dry before painting and that moisture has no access to the back of the siding.

Dirt Discoloration and Mildew
(Figure 26)

These two conditions are frequently confused with each other. The illustration will indicate the difference. Note the fibrous, fungus-like appearance of the mildew in the right half of the picture.

Finishing coats that contain too much linseed oil are likely to dry soft and tacky, forming the type of surface that catches and holds every particle of dust and dirt. On the other hand, a finishing coat made on the basis of our formula will produce a glossy but sufficiently hard film to resist excessive dirt collection. In addition, it will stand up better when exposed to weather.

Mildew is a dark-colored fungus growth which tends to form under the combined conditions of moisture, warmth and shade. It also develops more readily on soft paint films than on harder ones.

Where mildew exists, remove all the fungus possible before repainting. Wash the surface thoroughly with a fairly strong solution of a good paint cleaning compound or a mixture of ¼ pound of tri-basic sodium phosphate to a gallon of water.

After the surface has been well rinsed with clear water, apply the regular first coat formula for previously painted wood (Formula No. 1c, page 14). For the finish coat, the amount of linseed oil in Formula No. 2c should be reduced to 2½ gallons and one quart of turpentine added to the formula.

The addition of mercuric chloride (corrosive sublimate) to the paint for both coats will aid in retarding the mildew growth. The proportion should be 4 ounces to every hundred pounds of white-lead.

Mercuric chloride is a deadly poison and must be used with great care. It may be added to the paint in either of two ways. The preferred method is to dissolve the mercuric chloride in alcohol. The quickest way to do this is to use heat by placing a container with a small amount of alcohol in a hot water bath (but not over an open flame).

The second method is to make a very thin paste of the mercuric chloride and a small amount of linseed oil and turpentine. Add this paste gradually as the paint is being mixed.

Early Loss of Gloss and Early Chalking

If pronounced sudden loss of gloss or chalking occurs shortly after painting, it is probably due to incorrect formulation of the paint or to the presence of moisture in some form (frost, fog, rain, etc.) during the drying time of the paint. Soft undercoats which were not allowed sufficient time for drying may reduce the gloss of the finish coat.

Discoloration from Metal

When such metal fixtures of the home as screens, gutters and downspouts are left unpainted, moisture and gases often form metal salts. These salts are washed down over the surface of the paint film by rain. When the paint contains certain white pigments, the salts actually stain the film so that it is impossible to remove the discoloration. Pure white-lead paint is never stained by these salts and any normal discoloration that is deposited on the surface of a white-lead film from this source is washed away.

Running and Sagging
(Figures 27 and 28)

Running and sagging are associated defects. Both are due, nearly always, to the application of too much paint. If the paint is high in oil content, the tendency is to apply it too freely, and consequently the paint will run or sag. A paint of correct formulation, brushed on a suitable surface in a workmanlike manner, never will show either of these defects. The preparation of a surface which has

shown these defects is similar to the preparation of a surface that has shown wrinkling; that is, the rough portions of the surface are smoothed with sandpaper before the first repaint coat is applied.

APPENDIX

A—Equivalent Volumes of Dutch Boy White-Lead

(Approximate)

WEIGHT	VOLUME
100 pounds	3¼ gallons
50 pounds	1⅝ gallons
25 pounds	6½ pints
12½ pounds	3¼ pints
5 pounds	1¼ pints
1 pound	1 gill

B—Composition of White-Lead Paint

Per cent compositions, by weight and by volume, of the white-lead paints used on exterior wood.

FORMULA	MATERIAL	% BY WEIGHT	% BY VOLUME
	White-lead	68.0	22.2
No. 1c	Linseed Oil	18.7	44.2
(First Coat, Re-painting)	Turpentine	12.6	31.9
	Drier	.7	1.7
Per cent pigment in non-volatile portion		78.4	33.4
	White-lead	70.6	24.8
No. 2c	Linseed Oil	27.1	68.9
(Finish Coat, Re-painting and New Wood)	Turpentine	1.6	4.3
	Drier	.7	2.0
Per cent pigment in non-volatile portion		72.3	26.5
	White-lead	60.8	17.3
No. 3c	Linseed Oil	27.4	56.4
(Priming Coat, New Wood)	Turpentine	11.2	24.9
	Drier	.6	1.4
Per cent pigment in non-volatile portion		69.0	23.5
	White-lead	72.1	25.9
No. 4c	Linseed Oil	16.7	43.1
(Second Coat, New Wood)	Turpentine	10.4	29.0
	Drier	.8	2.0
Per cent pigment in non-volatile portion		81.2	37.5

C—Equivalent Weights of Dutch Boy Colors in Oil

YELLOWS	HALF PINT	QUART	GALLON
C. P. Chrome Yellow—L	1 lb. 3 oz.	4 lb. 13 oz.	19¼ lb
C. P. Chrome Yellow—M	1 " 3 "	4 " 14 "	19½ "
C. P. Chrome Yellow—O	1 " 9 "	6 " 4 "	25 "
Chrome Yellow—L	1 " 3 "	4 " 14 "	19½ "
Chrome Yellow—M	1 " 4 "	5 "	20 "
Chrome Yellow—O	1 " 6 "	5 " 7 "	21¾ "
French Ochre	14 "	3 " 10 "	14½ "
International Airways Orange (Basic Lead Chromate)			27¾ "
GREENS			
C. P. Chrome Green—L	1 " 2 "	4 " 8 "	18 "
C. P Chrome Green—M	1 "	4 "	16 "
C. P. Chrome Green—D	15 "	3 " 11 "	14⅞ "
Chr. Grn. (Yel. Shade)—L	1 " 4 "	5 " 2 "	20½ "
Chr Grn. (Yel. Shade)—M	1 " 4 "	5 " 2 "	20½ "
Chr. Grn. (Yel. Shade)—D	1 " 4 "	5 " 2 "	20½ "
Chr. Grn. (Blue Shade)—L	1 " 4 "	5 " 2 "	20½ "
Chr. Grn. (Blue Shade)—M	1 " 4 "	5 " 2 "	20½ "
Chr. Grn. (Blue Shade)—D	1 " 4 "	5 " 2 "	20½ "
Bronze Green	1 " 2 "	4 " 8 "	18 "
C. P. Chromium Oxide Green	1 " 7 "	5 " 11 "	22¾ "
BLUES			
Dutch Boy Blue	15 "	3 " 14 "	15½ "
C.P. Prussian (Chinese) Blue	10 "	2 " 6 "	9⅝ "
Prussian (Chinese) Blue	11 "	2 " 14 "	11½ "
Ultramarine Blue	14 "	3 " 7 "	13¾ "
Cobalt Blue	13 "	3 " 4 "	13 "
REDS			
Bulletin Red	9 "	2 " 3 "	8¾ "
Dutch Poster Red	14 "	3 " 10 "	14½ "
Rose Red	13 "	3 " 6 "	13½ "
Rose Lake	14 "	3 " 8 "	14 "
Rose Pink	14 "	3 " 10 "	14½ "
Tuscan Red	15 "	3 " 12 "	15 "
English Venetian Red	1 lb. 1 "	4 " 4 "	17 "
Indian Red	1 " 5 "	5 " 6 "	21½ "
Orchid-Tinter	9 "	2 " 6 "	9½ "
BLACKS			
Lamp Black	9 "	2 " 4 "	9 "
Drop Black	11 "	2 " 14 "	11½ "
BROWNS			
Raw Italian Sienna	14 "	3 " 8 "	14 "
Burnt Italian Sienna	14 "	3 " 9 "	14¼ "
Raw Turkey Umber	13 "	3 " 5 "	13¼ "
Burnt Turkey Umber	13 "	3 " 6 "	13½ "
Vandyke Brown	11 "	2 " 12 "	11 "

D—Painting Contract Form

For all ordinary jobs of exterior and interior painting the following contract between painter and property-owner will fill requirements:

(Date) .....

We agree to paint the property located at (Address) ..... and owned by (Name of owner) .....

.....

doing the work listed herein in accordance with the following specifications:

1. Paint is to be applied only when the surface is thoroughly dry.

2. All surfaces shall be clean, smooth and free from dust, dirt, grease, mortar, loose paint, scale, etc.

3. All paint shall be evenly spread and thoroughly brushed out.

4. On new work, after priming, knots and sappy streaks shall be shellacked with one coat brushed out thin.

5. All exterior work shall be allowed to dry from two to four days before the next coat is applied and for interior work at least twenty-four hours for each coat.

6. All nail holes, dents, cracks, joints or other defects in the surface shall be puttied after the priming coat has been applied and is thoroughly dry.

7. Before any paint is applied, plaster surfaces, either new or old, must be made clean and smooth and all cracks and holes filled with patching plaster.

8. Walls that have been calcimined shall be washed until all calcimine is removed before applying any paint.

9. All new plaster, stucco or concrete shall be aged before painting by washing with a solution made by dissolving two pounds of zinc sulphate in one gallon of water.

10. All gloss paint used shall be pure Dutch Boy white-lead mixed in proper proportions with Dutch Boy linseed oil, pure turpentine and Dutch Boy liquid drier, (or) Dutch Boy Pure White Lead Exterior Primer and Dutch Boy Pure White Lead Paint (outside white). Flat paint shall be pure Dutch Boy white-lead, mixed in proper proportion with either Dutch Boy Lead Mixing Oil or Dutch Boy flatting oil.

11. All material and tools to be furnished by the painting contractor.

(Here list and specify in detail all work to be done.)

Price for all work specified above $.....
Terms of payment:

After first coat is applied $.....

On completion of job $.....

(Signed) .....
(Signature of Contracting Painter)

Accepted .....
(Signature of Owner of Property)

E—Products of National Lead Company

Acetate of Lead

White—Broken, Crystals, Granular, Powdered
Brown—Broken

Barium Sulphate

Barytes

Basic Lead Chromate

Basic Lead Sulphate
White

Bearing Metal
Dutch Boy and Hoyt Brands
Special Shapes
Special Compositions

Blatchford Plate Mounting System

Carbide

Cinch Anchoring System
Expansion Bolts

Colors
Dry and in Oil
In Japan

Drier, Liquid

Fittings, Pumps, Valves
Bends, Lead or Lead Alloy
Bends and Ferrules, Combination
Cocks, Antimonial Lead Plug
Ferrules, Combination
Fittings, Cast Antimonial Lead
Pumps, Antimonial Lead
Soldering Nipples, Combination
Traps, Lead or Lead Alloy
Valves, Antimonial Lead

Homogeneous Lead Equipment
See Lined or Covered Products

Hyposulphite, Lead
White and Black

Lined or Covered Products
Acid Recovery Equipment
Bars, Lead-Covered Steel
Chemical Apparatus, Lead-Lined
Coils, Lead-Lined Copper
  Lead-Covered Copper
  Tin-Lined Copper
  Tin-Covered Copper
Fittings, Lead or Tin-Lined
Impellers, Lead or Tin-Covered
Pipe, Lead-Lined Iron, Brass, Copper or Steel
  Lead-Covered Iron, Brass, Copper or Steel
  Tin-Lined Iron, Brass, Copper or Steel
  Tin-Covered Iron, Brass, Copper or Steel
  Tin-Lined Lead
Pumps, Tin-Lined Lead
Sheets, Lead-Covered Steel
Tank Cars, Lead-Lined
Tank Connections, Lead or Tin-Lined or Covered
Tanks, Lead or Tin-Lined
Valves, Lead or Tin-Lined
Wire, Lead-Covered, Iron, Copper or Monel

Linseed Cake
Linseed Meal
Magnus Metal Products
Miscellaneous Metal Products

Airplane Body Pattern Alloy
Alloys, Lead, Tin or Zinc Base
Aluminum Solder
Angles, Lead
Anodes, Lead, Tin or Special Alloy
Antimony
Antimonial Lead
Balls, Lead
Bars, Lead or Tin
Battery Straps
Bearings
Bearing Plates, Lead
Bottles, Lead
Britannia Metal
Burning Bar
Came Lead
Castings, Special
Caulking Lead
Chemical Lead
C. T. Metal
Coils, Lead, Tin or Special Alloy
Common Lead
Discs, Lead
Electrotype Cases
Electrotype Metal
Extruded Shapes, Special
Fuse Wire
Gasket, Lead
Gasket Metal
Glazier's Lead
Grid Metal
Guards, Metal
Hammer Metal
Hammers, Lead or Babbitt
Hardening Lead
Impression Lead
Ingot Lead
Kirksite "A" Alloy (for metal stamping dies)
Leads, Printers'
Music Plates
Mold Metal, Rubber
Nails, Lead Headed
Needle Metal
Net Leads
Organ Pipe Metal
Ornaments, Lead
Pewter
Phosphor Tin
Pig Lead
Pig Tin
Pinking Blocks
Pipe, Tin
Plates, Lead
Pulverized Tin or Lead
Ribbon, Tin or Lead
Roof Flanges

Roofing Washers
Sash Weights, Lead
Screens, Lead
Sheet Tin
Shrapnel Balls
Shredded Lead
Sinkers, Lead
Sleeving, Lead
Shot, Lead
Sounding Leads
Spacers, Lead
Spelter
Stamping Metal
Tellurium Lead
Tellurium-Antimonial Lead
Tinning Compound
Tint Plates
Tubing, Lead, Tin or Special Alloy
Washers, Lead
Wedge Lead
Weights, Miscellaneous Lead
White Copper Stamping Metal
Wire, Lead, Tin or Special Alloy
Wool, Lead

Oil Well Drilling Muds

Oils

Castor Oil
Flatting Oil
Lead Mixing Oil
Linseed Oil, Raw and Boiled

Oxides of Lead

Litharge
Orange Mineral
Red-Lead, Dry, Paste, Liquid

Paint, Ready to Use

Dutch Boy Liquid Red Lead
Dutch Boy Pure White Lead Exterior Primer
Dutch Boy Pure White Lead Paint
Dutch Boy Quick-Drying Red Lead

Pipe, Lead

Antimonial
Chemical
Common
Tellurium
Tellurium-Antimonial
Special Alloy

Pumps

See Fittings, Pumps, Valves
See Lined or Covered Products

Putty

Red-Lead

See Oxides of Lead

Sheet Lead

Antimonial
Chemical
Common
Crawlproof
Tellurium
Tellurium-Antimonial
Special Alloy

Solder

Dutch Boy Brands
Rosin and Acid Core
Special Shapes
Special Composition

Silicate, Lead

Lead Bisilicate
Lead Monosilicate

Sulphate

Copper and Iron
Zinc

Titanium Pigments

Titanox—A (Titanium Oxide)
Titanox—B
Titanox—C
Titanox—L (Lead Titanate)
Titanox—M

Type Metals

Combination Metal
Linotype-Intertype
Ludlow
Monotype
Sorts Caster
Stereotype-Autoplate
Special Mixtures

Valves

See Fittings, Pumps, Valves
See Lined or Covered Products

Wall Primer

White-Lead

Coach and Car
Dry
In Oil (Soft and Heavy Paste)
Pulp

Zinc Chloride

INDEX

INDEX (Continued)

2 FORMS...
Exterior Primer *and* Outside White
2 COAT JOB...
on New *or* Old Work

The two forms of Dutch Boy Pure White Lead Paint—Exterior Primer and Outside White—are specially designed for two-coat painting on new or old wood. It's a combination that gives white lead's durability and weather-resistance PLUS hiding unsurpassed by any two-coat combination on the market.

Both forms come in four convenient sizes: quarts, gallons, 5-gallon kits and 20-gallon drums.

—CONTINUED FROM INSIDE FRONT COVER

CONVENIENT

VOLUME MIXING

DIRECTIONS

for

DUTCH BOY SOFT PASTE WHITE-LEAD

Shown in the Front of This Book